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Returning to Normal Publication

THE dispute between the London Society of Compositors and the London Master Printers' Association, which had resulted in a stoppage of work by compositors in the London area for the past month, was brought near to final settlement by the return to work of the compositors on November 1. Negotiations have still to take place for a final settlement, but there is now every expectation that normal working will be resumed on a permanent basis, and that the publication of many periodicals which had been gravely delayed will now continue without interruption. We deeply regret the inconvenience which has been occasioned our subscribers and advertisers. The present issue of *The Railway Gazette* carries a greater number of editorial and advertising pages than normal, and every endeavour is being made to deal with matters of technical or professional interest as speedily as possible. In some cases it has been necessary to deal rather more briefly than otherwise would have been the case with events which may have lost some of their topicality because of the lateness of publication. On the other hand, we have endeavoured to cover all matters of essential interest to our

readers. Because of the large accumulation of matter which has resulted from the interruption of publication, it has been necessary to hold over a number of articles which otherwise would have appeared, but it is hoped that by the publication of our next issue we shall have made good lost ground and returned to our full normal services in the covering of news and technical developments.

The Transport Debate

THE House of Commons debate on October 18, on the second annual report (for 1949) of the British Transport Commission, did little to clarify the situation, for the £20,000,000 deficit had been foreseen for months past. Two statements, however, by the Minister of Transport need correction. Emphasising the burden of the guarantee charges on British Transport stock and of other statutory charges which Parliament has laid down that the Commission must meet (though his own disapproval of their repudiation is most mildly expressed), Mr. Barnes implied that the former railway companies were not so burdened. In fact, the total sum paid in such charges by the Commission does not differ greatly from the amount paid, and regularly paid, by the companies on their debentures and similar obligations. Failure during the war to take action to adjust railway charges to prices was given by Mr. Barnes as a cause of the railways' present plight, which, he hinted, would have been as bad, or worse, under private ownership. In fact, the Railways Agreement (Powers) Order of 1941 laid down that before Government control of the railways ended, time was to be given "for the operation of any statutory machinery governing the level of charges." The companies obviously would have availed themselves of this machinery, slow and cumbrous though it was. Mr. Barnes did not show that the Commission had achieved anything which in comparable circumstances could not have been achieved by the companies.

Second Year of London Transport

LORD LATHAM, Chairman of the London Transport Executive, has sent a 4,000-word personal letter in booklet form* to the 100,000 members of the staff of London Transport. This was despatched so that all employees received a copy at the same time. Lord Latham, recording many facts about the working of London Transport and explaining the lessons to be learnt from experience, adopts an informal and popular style. The point is made that, though there has been some progress during the past twelve months, working expenses were up by more than £2 million and receipts down by £884,000, which placed an even greater obligation on all departments of the undertaking to stimulate the use of rail and road transport by providing adequate services with comfort, and extending courtesy at all times. Lord Latham shows how receipts went last year in wages, fuel, rates, and so on, gives statistics of working expenses and traffic receipts, states the position as regards buses and rolling stock, and finally, stresses that London Transport is more than an undertaking on wheels, being rather an essential service of "taking people where they want to go, when they want to go, and how they want to go."

Middle East Locomotive Contracts

THIS month the Vulcan Foundry Limited, Newton-fer-Willows, has broken into two new markets in receiving important orders from Iran and Egypt. Both are for standard-gauge oil-burning locomotives, the Iranian State Railways order calling for 40 Santa Fe type locomotives of 2-10-2 wheel arrangement, which will be used for working both passenger and freight trains. These will be some of the biggest engines ever to be built at the Vulcan Foundry and the total value of the contract is well over £1,000,000. The order placed by the Egyptian State Railways is for twenty 2-8-0 type freight locomotives, the design of which is based on the ex-L.M.S.R. standard 2-8-0 freight locomotive, from which was developed the

* "The Second Year—A Personal Letter from the Chairman." Published by the London Transport Executive, 55, Broadway, London, S.W.1

similar type of W.D. locomotive, many of which were put into service on the Egyptian Railways during the war. This contract is worth about £500,000. These two orders, which closely follow one for 50 locomotives to the value of nearly £1,000,000, recently placed by the Victorian Railways, Australia, were secured in the face of very keen competition from all parts of the world, and in the case of the Egyptian contract tenders were submitted by 21 firms.

Important Locomotive Orders from Australia

AN order for 48 main-line diesel-electric locomotives has been placed by the Western Australian Government with the Metropolitan-Vickers Electrical Co. Ltd. The order, valued at £2,250,000, is the largest for diesel-electric traction equipment to be placed with a British firm so far. The locomotives will be of rigid frame design, and of the 4-8-4 type, with four driving axles in the main frame and two 2-axle carrying and guiding bogies to meet low axle-loading requirements. Each locomotive will be fitted with a Crossley two-stroke loop-scavenge engine having a service rating under Australian climatic conditions of 1,100 b.h.p. Traction motors, generators, and auxiliary machines will be manufactured at Sheffield, while the remaining electrical equipment will be built at Trafford Park. The manufacture of the mechanical parts and the final assembly will be the responsibility of Metropolitan-Vickers-Beyer, Peacock Ltd. The above follows an order valued at £1,750,000 for 40 electric locomotives for New South Wales placed earlier in the month. These will be used on the Sydney-Lithgow line which is being electrified to handle the coal traffic into Sydney. The locomotives will be of the Co-Co type weighing 108 tons each and all axles will be motor-driven. They will have a horsepower at the hourly rating of 3,780 and this is the highest power of any locomotive unit yet produced in this country.

British Rails Order for Persia

THE British steel industry has secured an order to supply Persia with more than £3,000,000 worth of permanent way material. The contract, which was obtained in the face of strong French and German competition, was signed in Teheran by Sir George Binney, a director of the United Steel Companies Limited, Sheffield, on behalf of the British Railmakers' Association. Providing for 100,000 tons of rails, sleepers and fishplates, the contract is described as the largest order of its kind placed by any country for many years. The material is intended for the completion of the Teheran-Meshed line, and for another line linking Teheran with Tabriz, the capital of the north-western province of Azerbaijan. The distance remaining to be completed on the Meshed line is some 390 miles and that on the Teheran-Tabriz line 120 miles. The Meshed line will connect with the main road from north-east Persia to the railhead in Persia of the North-Western Railway of Pakistan at Zahidan. The completion of the line from Teheran to Tabriz will link the 5-ft. gauge Azerbaijan lines, which connect Tabriz with the Caucasian railways at the Soviet frontier, with the Trans-Persian Railway.

British Transport Commission Statistics

THE main interest in the eighth statistical period of the year for the British Transport Commission, of which details appear elsewhere in this issue, is in the decline, as against last year, in British Railways passenger traffic. Reasons are not easy to deduce. Passenger receipts for this period (to August 13) were 6 per cent. below last year's; but for Periods 7, 6, and 5, they fell short of the 1949 receipts by 10, 5, and 7 per cent. respectively. Petrol was de-rated towards the beginning of Period 6, which seems to have had little effect. Nor does the incidence of the Whitsun and August bank holidays in Periods 6 and 8 respectively give any clue. Traffic receipts for the month of June show a drop, against last year, of 20 per cent. in monthly return ticket bookings (which form nearly half of all passenger takings), with small increases in

receipts from excursion and workmen's tickets, and small decreases in those from other types of ticket issued. Apart from this, and without other and later details available, it is possible only to infer a general drift to the road, with or without decreased public spending power.

The International Railway Congress

THE fifteenth session of the International Railway Congress Association, which terminated on October 4, is an example of what can be done by international co-operation to improve technical efficiency and solve common problems. With railways throughout the world beset with many common troubles, it is more than ever desirable that the results of experience, ingenuity, and hard thinking should be shared. It is regrettable that the railways of North and South America, which have so much to contribute, could not send delegates. The other continents, however, including countries as diverse as South Africa and Indo-China, were well represented, and a delegation from Western Germany indicated the importance once more of the German Federal Railways in technical railway matters. The comprehensive British team was commensurate not only with the wide range of subjects discussed involving many branches of railway activity, but also the preponderant part played by the British Transport Commission and its two Executives (Railway and London Transport) in making the Congress a success; this was due to the skilful and arduous work of British reporters and secretaries, and also to the many authoritative contributions by British delegates to the discussions, some account of which is given elsewhere in this issue.

European International Timetables

THE European international timetables for next summer which were drawn up at the International Timetable Conference at Amsterdam this month contain some important accelerations, of which we give fuller details elsewhere in this issue. The chief cuts in timings have been made to the "Rome Express," which takes two hours less between Paris and Rome, and the "Simplon-Orient" which again runs by way of Trieste and saves over four hours between Istanbul and Paris. The "Nord Express" gains almost 5½ hr. between London and Copenhagen via Dover-Ostend, and travellers to Scandinavia via the Harwich-Hook route also benefit by an acceleration of more than 6 hr., enabling passengers to leave London one evening and reach Copenhagen by midnight the following day. Until the complete schedules are made public, it is not possible to say how much these improvements are due to faster running and how much to the speeding up of customs formalities, but any savings in running times which can be made are particularly meritorious in view of the great weight of present-day European expresses and the heavy wartime damage in many countries. The Conference next year is to be held in Oslo.

The Southern in 1929 and 1950

MR. C. P. HOPKINS, Chief Regional Officer, Southern Region, in delivering, on October 12, the first presidential address to British Railways, Southern Region, Lecture & Debating Society since the late Sir Herbert Walker addressed the Society in 1929, said that in both 1929 and today a fairly new railway organisation was being operated. At present the Southern Region had reasonably well settled down as part of the British Railways undertaking, though much remained to be done in welding the railway structure together. As the formation of the groups in 1923 had soon shown that a management structure that might be suitable for a small constituent was not necessarily adequate to meet the needs of a larger company, so, with the formation of British Railways in 1948, another test of organisation had begun, and was not yet finished. As a Region they had to bear in mind the ideas behind the organisation and to accept that nationalisation had demanded sometimes rather unpalatable alterations. Having accepted that, everyone had to play

his part in making the Region work as an efficient smooth-running piece of mechanism. Mr. Hopkins pointed out that the organisation had been operating now for 2½ years and had by no means broken down, and that in certain directions the changes on other lines had been more fundamental than with the Southern.

Northern Line Extension Curtailed

THE London Transport Executive has decided that the introduction of the Green Belt proposals since the New Works Programme of 1935-40 was drawn up, together with the consequent restriction on development, no longer justify extension of the Northern Line from Edgware to Bushey Heath. This part of the scheme will therefore be abandoned or at least curtailed. Depot buildings at Aldenham are being adapted for use as an overhaul works for the London bus fleet. Extension from Edgware to Brockley Hill, and electrification beyond Mill Hill East either to Edgware or to Mill Hill (The Hale) only, may be contemplated at a later date, when the area to be retained as a Green Belt has been more precisely defined and when potential development and traffic requirements can be assessed. The effect of this announcement, and that of the deferment of the Bakerloo Line extension to Camberwell Green which is reported elsewhere in this issue, are likely to relegate to a still more distant future the long-term plans of the Railways (London) Working Party, which confirmed these two already authorised projects. The other outstanding major works in the 1935-40 programme, about which no pronouncement has been made, are quadrupling between Harrow and Rickmansworth, electrification between Epping and Ongar, and electrification between Finsbury Park and Alexandra Palace and East Finchley for an extension of the Northern City Line.

Important Railway Radio Telephone System

THE Erie Railroad recently inaugurated one of the most extensive and comprehensive systems of railway radio telephone communications in the world. It covers 884 route-miles or 85 per cent. of the Erie main line between New York and Chicago, and enables conversations to be carried on between (1) engine crews and conductors (guards), (2) engine crews and other crews within range, (3) moving trains and wayside stations, and (4) neighbouring stations. Some 50 stations, 119 diesel locomotives, and 42 cabooses are equipped for transmission and receipt of radio telephone messages. The stations so equipped are situated from 6 to 30 miles apart, the distance depending on gradients and topography; every train is always within range of a station either in front of or behind it. Each station site was selected by exploring the area with a radio-equipped lorry having a 63 ft. antenna mast, establishing contact with approaching trains, which reported as each milepost was passed until they were out of range. Sites were then fixed by plotting the strength of these signals. The new system has proved invaluable when normal communications by wire have become disrupted, and when conductors have had to stop trains due to defects or in other emergencies. The illustration on page 406 shows a station in touch with a passing train.

Modernising London Underground Cars

RAILWAY cars on the London Underground system have an average life of thirty years, but developments in design and equipment render them out-of-date before they have reached that age. For some years, therefore, the London Transport Executive, and its predecessors, have adopted a policy of reconstructing much of the rolling stock after about fifteen years' service. This not only has the advantage of providing the older cars with modern electrical equipment, brakes, automatically-opened doors, and other improvements, but allows of operation with the latest type of stock. With the outbreak of war in 1939 this work had to be abandoned, but good progress has now been made in catching up with arrears and the preliminary work on 77 cars scheduled for conversion under the 1935-40 programme has been completed. The final

work of conversion in these cars is now in progress, as an article elsewhere in this issue shows, and another task now in hand is the reconstruction to standard form of the twenty-four experimental cars, eighteen of which were streamline, purchased in 1936. On the completion of the reconstruction work now in progress at Acton Works, a programme of renovating the 1920 "all steel" District stock will begin to bring it into line with up-to-date practice. By giving much of the older underground rolling stock a new lease of life the London Transport Executive is achieving greater efficiency in operation and higher standards of comfort for passengers and at the same time avoiding much of the heavy capital expenditure entailed by the construction of new rolling stock.

The Future of the G.N.R.(I.)

THE Northern Ireland Parliament has been debating its policy towards the Great Northern Railway (Ireland). As forecast in an editorial note in our September 29 issue, Mr. McCleery, Minister of Commerce, announced on October 3 that the Ulster Transport Authority had decided not to acquire the portion of the G.N.R.(I.) in the Six Counties. After this announcement the directors of the G.N.R.(I.) issued a statement to the effect that the Minister had been misinformed in that part of his announcement relating to an investigation by the Ulster Transport Authority and the G.N.R.(I.).

The Great Northern directors pointed out that these discussions had not originated from a recent suggestion by the General Manager of the G.N.R.(I.) to the Chairman of the U.T.A., but in a proposal made in 1948 by the U.T.A. Chairman that co-ordination, among other matters, should be discussed. The General Manager of the Great Northern reported that the notes prepared by the U.T.A. for the discussion concentrated mainly on the closing of certain G.N.R.(I.) railway services, but omitted a reciprocal withdrawal of road services. It was said that the notes suggested no incentive for the G.N.R.(I.) to close lines where the General Manager advised that the loss in receipts would be greater than the savings accruing to the company.

It will be recalled that in 1935 the Northern Ireland Government set up the Northern Ireland Road Transport Board, with power to take over all public road services in the North. The Great Northern complains that the bus services in the North which it then surrendered to the Board and are now operated by the Ulster Transport Authority as successors, are being used to compete with the Great Northern train services in the North, with the result that the profit which the company's combined road and rail services make in the South is more than offset by the loss on railway working in the North.

The Great Northern Railway has also suggested that the Minister should superintend the process of co-operation in accordance with his own expressed wish that "all overlapping and all unnecessary provision by either undertaking may be eliminated," and states that it will readily place its General Manager at the Minister's disposal for working out the Great Northern part of the scheme.

The future of the Great Northern Railway has been problematical for some years. One solution was put forward by Sir James Milne in his report on transport in Ireland presented to the Minister for Industry & Commerce in Dublin in 1948. In this plan the U.T.A. and Coras Iompair Eireann would each take over the fixed assets of such parts of the Great Northern system as were within their respective national territories, with the Great Northern continuing operation of its rail and road services.

In explaining that it has no recourse to public funds to enable it to meet the applications for increased pay which are being pressed on it and pointing out the economies which have been made without detriment to its services, the Great Northern concludes a recent statement with the words: "no more could be asked externally of a joint stock company operating under exceptional handicaps; no less could be credited to its stockholders in any proposal relating to their future." The continued expansion of its

diesel railcar services, and the extension of the Belfast-Dublin, "Enterprise" express to Cork, in collaboration with Coras Iompair Eireann, are sufficient earnest, if it were needed, that the company is upholding worthily the high standard of its services, despite its almost untenable present situation and precarious future.

The debate on October 18 in the Northern Ireland Parliament was notable for the vigour with which the Government's policy towards the G.N.R.(I.) was criticised by speakers on both Government and Opposition sides. It was contended that there had been too much delay in tackling the problem. One member said that if financial assistance was necessary to preserve the railways they should have it lest they had to close one by one. This debate was adjourned until October 25, when by a twenty-to-eight vote a motion taking note of a statement by the Minister of Commerce to the effect that the Government did not consider advisable the acquisition by the Ulster Transport Authority of the Northern Ireland part of the G.N.R.(I.) was carried. The House desired that economies should be effected by co-ordinating U.T.A. and G.N.R.(I.) services, and accepted an addendum, that it awaited the Government Report on the negotiations to this effect between the Company and the Authority.

The Railway Clerks' Association of Dublin has expressed the "bitter disappointment of the 3,200 employees of the Great Northern Railway at the decision of the Northern Ireland Government not to acquire the G.N.R.(I.) lines in Northern Ireland." It says that these employees "are quite likely to find themselves without employment if the Northern Ireland Government is not prepared to take a more enlightened view of the problem, and the addition of this number will materially affect the general unemployment problem in Northern Ireland."

The Functions of Railway Management

THAT satisfaction of the customers who pay the money essential to a transport undertaking's existence is the first aim of intelligent transport management, is the view expressed by Mr. John Elliot, Chief Regional Officer, London Midland Region, British Railways, in his Presidential address on October 18 to the Railway Students' Association. This aim, as he pointed out, is often forgotten in the many wrangles over organisation and policy and in the over-organisation and pre-occupation with procedure that debar clear thinking. Success in the British nationalised transport industry is efficient operation resulting in sale to the public of services in the largest measure and at the lowest price which will cover costs, including a modest return on the capital invested by the nation. This last requirement is stressed by Mr. Elliot, with a timely reminder that the success achieved by the greatest industrial organisations (which includes also good conditions of employment for their staffs and—a most important point—continual replacement of obsolete plant) is due to their ability to charge a little more than production cost, such cost being the lowest consistent with quality. He draws attention to Governmental restriction of railway rate and fare increases in Britain and elsewhere; but he deprecates any subsidy of the railways, either direct, which leads to inefficiency and deterioration of staff morale, or indirect, in the form of the uneconomic railway charges now enjoyed by many industries in this country, which often do not pass these benefits on to their customers—including the railways. There is, as Mr. Elliot remarked in his recent report on the Victorian Railways, no more reason for transport services to be provided at an over-all loss than for any other essential commodity; and uneconomic charges result in obsolete equipment and inadequate services.

Second only to good service at the right price as the aim of railway management is the imbuing of the staff with the will to achieve this aim. This requires management and men—and trades union leaders—to play their several parts. One of Mr. Elliot's maxims, which he has himself put resolutely into practice, is consultation by the management of the staff, to whose intelligence and common sense, in this country, he pays a generous tribute. Manage-

ment's third function, he maintains, is to know its business and to be efficient; this necessitates, amongst other qualities, sensitiveness to criticism and to public opinion, and adaptability to the increasing pace of change, which should be a stimulus to the intelligent.

Most controversial, however, of Mr. Elliot's opinions are those on the present much-criticised functional system of management on British Railways. After stating his view that the logical outcome of the British Transport Commission policy of integration will be, eventually and in due course, some form of regional management embracing rail and road transport, he defends the existing organisation. It has, he maintains, enabled principles to be worked out and laid down far more quickly than would have been possible with a smaller degree of centralisation. (Some critics of the regional organisation however question the necessity for many such principles to be enunciated from above or applied generally throughout British Railways.) Mr. Elliot emphasises the dependence of the present organisation on the realisation by Chief Regional Officers that they are not, and not meant to be, regional general managers, but rather agents of the management—with, however, wide powers, including the right of expressing their opinions both to the public and to the Railway Executive. Against this, he points out, the Executive must, as, in his opinion, it already does, leave day-to-day operation to the C.R.O.s, with a seniority which enables them to lead their teams with a sure sense of direction; this last involves knowledge on the part of the C.R.O. of Executive policy. Finally, Mr. Elliot reminds critics of the present *régime* that the powers delegated by the Executive to the C.R.O. in matters of expenditure exceed those of a general manager in company days. This, and also the C.R.O.'s wide powers concerning new works, development, and public relations, showed that Regional initiative is not strangled nor frustration engendered.

Integrating Freight Services

LAST July the British Transport Commission issued a statement of policy on the integration of its freight services by rail and road. This was given in full with editorial comment in our August 4 issue. There was also a reference at the same time to the fact that the B.T.C. would shortly issue a statement dealing with the objectives and methods of integrating inland waterways services with those by rail and road. During the past twelve months, indeed, contacts have been developed by the B.T.C. at all levels with the Executives concerned to ensure closer working throughout the country, and in the annual report of the B.T.C. for the year ended December 31, 1949, there was a reference by Lord Hurcomb to arrangements made by the North Eastern Division of the Docks & Inland Waterways administration and the Railway Executive for the mutual hiring of road vehicles, while in other Divisions the Road Haulage Executive had undertaken the collection and delivery of waterways traffic.

The supplementary statement of policy dealing with the integration of these services has now been issued by the Commission and in this it is laid down that transport by inland waterways is specially suitable for the following purposes:—

- (a) Traffic imported and for shipment in the ports connected with the inland waterway system, particularly in those instances where overside delivery from ship to barge, or *vice versa*, takes place.
- (b) Traffic which can be carried from point to point in barge loads.
- (c) Traffic conveyed to or from waterside premises.
- (d) Petroleum and liquids in bulk.
- (e) Traffic requiring bulk movement and storage in the warehouses of the Docks & Inland Waterways Executive.
- (f) Trunk haul to river or canal waterheads with subsequent delivery by the Road Haulage Executive.

While the Docks & Inland Waterways Executive must be responsible for the provision of all services on the canals owned by the B.T.C., other than the carrying activities of private firms, the Road Haulage Executive will eventually

be responsible for the provision of all road services for freight within B.T.C. control. The transfer of the road vehicles of the Docks & Inland Waterways Executive used on collection and delivery services ancillary to the waterways to the Road Haulage Executive will be completed as soon as practicable and the Road Haulage Executive will provide the services. The latter Executive will also provide feeder and distributive services to suitable points on the waterways and will use the docks and inland waterways service in appropriate cases for bulk movement of imported and exported goods.

The common supply service to be developed by the Road Haulage Executive will include the provision of vehicles of suitable capacity and design required by the Docks & Inland Waterways Executive so long as that Executive continues to operate road vehicles, and, meanwhile, the latter will inform the Road Haulage Executive of the general scope of its requirements and any arrangements made for the acquisition of vehicles. Overhauls and repairs to vehicles will be effected by the Road Haulage Executive wherever there are suitable facilities and where such a course is considered convenient and economical. There will be further co-operation with the Railway and Road Haulage Executives in the joint use of existing terminals and in promoting new joint terminals on modern lines under single control. There will also be full prior consultation and agreement between the three Executives on all works schemes of possible joint interest. Arrangements will be made for the exchange of selected officers and staff between the Executives concerned and in commercial arrangements and policy the Divisional Traffic Officers of the Docks & Inland Waterways Executive will maintain the closest contact with officers of the other Executives.

Integration and Incentives

IN his presidential address to the Institute of Transport on October 16, Mr. J. S. Wills, who is Managing Director of the British Electric Traction Co. Ltd., gave his personal views on some of the internal transport problems of today, expressing doubt whether transport under nationalisation would ever be able to function as efficiently as it could under private enterprise. The comparative factors changed so much from year to year that it was possible there never would be positive proof one way or the other. Transport must be high in quality, said Mr. Wills, and low in price, and if we were to have integration, then safeguards and incentives must be found to take the place of those lost. Failing this, the critics must be free to question the integration theory itself.

One phenomenon of our times has been the growth of the operational unit, applying not only to transport and industry in general but also the trade union movement, which has raised the argument as to whether management should be by the few or by the many. Mr. Wills doubts whether we have worked out the right ideas or achieved the proper machinery to maintain in very large organisations such as the British Transport Commission the goodwill which can be kept comparatively easily in the smaller unit. Quite rightly, he points out that, without internal and external goodwill, efficiency cannot be maintained and that mere size is no virtue in itself. Goodwill among employees is just as important as public goodwill. Various opinions are quoted to support this statement, one by Sir William Wood in his presidential address to the Institute in 1943, to the effect that the Railways Act, 1921, had gone too far, with the result that vigilance would be needed to avoid the red tape and circumlocution which constituted a danger in all large units. Much more care was necessary, said Mr. Wills, to avoid the leagues of red tape likely to arise as a result of the working of the Transport Act, 1947.

There was always a tendency in the higher administration of any large undertaking to pretend that everything was well done in the best possible way. This disposition was strongest of all, said Mr. Wills, when an undertaking was in the charge of a public body. This in turn engendered an extreme sensitivity to anything that looked like criticism and tended to limit freedom of speech. It naturally followed therefore that the greater the number

of independent units in any industry the more varied and original the opinions expressed would be. Any responsible position in the transport industry was a way of life rather than a mere job. The duty of the Institute was to examine the trend of thought in relation to the transport industry dispassionately and without political bias. There was a danger today, however, that it might become shy of controversial topics, because of a feeling that there might be something sacrosanct about a political theory.

Sir Eustace Missenden, the Chairman of the Railway Executive, who was present during Mr. Wills's address, has pointed out, in a letter to the Editor published elsewhere in this issue, the policy of the Railway Executive in regard to the contribution of papers and so forth to the Institute and similar bodies.

Before nationalisation of transport there were certain powerful incentives to efficiency which developed gradually and yet so firmly that they came to be regarded as natural incentives. Basically, Mr. Wills emphasised, the various units of transport in competition had to satisfy their customers to pay their way, and to live they had to pay their way.

Beyond the machinery of nationalisation, one had to consider a further problem of even greater import, and that was the human element. Transport in this country had reached a high standard largely because there had been individualism in all sections of the industry. Should complete integration of ownership be imposed, much of the stimulus of individualism and competition would be gone. One of the dangers of standardisation was that the advantages were obvious and the disadvantages were not. There was more to be said for the standardisation of machines than of methods and minds. Even in that case, however, standardisation should not go so far as to stultify progress or ignore local variations of conditions. Proponents of the standardisation of machines tended to establish a machine which either suited average conditions of usage or the worst conditions. Personal incentive presented another difficulty. Fear of want applied less in Britain now than at any other time. Today, however, increasing difficulty was found in rewarding those who by hard work and real effort and willingness to carry the burden of responsibility desired to raise themselves above their fellows. This was a social evil for which the State would have to find a cure.

A.E.C. Railcar Developments

THE introduction of A.E.C. diesel railcars on the Great Northern Railway (Ireland), the first two of which were put into operation as part of a three-car set between Belfast and Dublin on June 1, marked an important advance in that company's policy of extending the use of railcars on its system. The railcars, which were described and illustrated in our issue of June 2, are the result of the A.E.C.'s considerable experience in this field of passenger transport. Their design is based on the experience gained in collaboration with the former Great Western Railway. The first railcar, fitted with a single engine, built experimentally by A.E.C., was purchased and placed in service by that railway in 1934; in the same year three twin-engine railcars were ordered. The bodies of these four railcars were built by Park Royal Coachworks Limited. During 1935-36 a further 13 railcars, with bodies built by the Gloucester Carriage & Wagon Co. Ltd., were placed in service; these and subsequent railcars were fitted with twin engines. Railcars supplied so far were intended for "solo" operating and were only provided with emergency draw-gear and buffers. In 1937, A.E.C. introduced a new design, which, though having a lower top speed, was capable of hauling the equivalent of two 60-ft. trailers at a speed of 45 m.p.h.; this railcar body was also built by the Gloucester Carriage & Wagon Co. Ltd.

Between 1940 and 1942, 20 railcars were supplied to the Great Western Railway, with bodies built at Swindon. Of these, 14 had a top speed of 45 m.p.h., two had dual-ratio gearboxes giving alternative speeds of 45 and 65 m.p.h., and four had a top speed of 75 m.p.h. All railcars could operate in pairs as single units and the last four only were

intended to operate as twin sets later strengthened by the addition of a third intermediate coach. Altogether, the fleet of railcars operating on the Western Region, British Railways, has attained a total of 15 million miles. On receipt, in Ireland, the 20 A.E.C. railcars ordered by the G.N.R.(I.) (the bodies for which will shortly be completed by Park Royal Vehicles Limited) will take the place of steam trains on some of the main and branch-line services. One set is now running the "Enterprise" service between Dublin and Belfast. They will provide more frequent and faster services with lighter trains, more suitable for the transport needs of Ireland. Recently, Coras Iompair Eireann (C.I.E.) placed an order for 20 A.E.C. diesel railcars of a similar design, certain of which will probably be used between Dublin and the West Coast for tourist traffic. Further development plans are under consideration by the A.E.C. These include low floor height vehicles specially designed for use at stations where there are no raised platforms; plans are also in hand for the development of lightweight railcar sets comprising one or more four-wheel cars and/or trailers which should reduce running costs and at the same time give a more favourable weight per passenger ratio.

British Transport Commission Traffic Receipts

THE advance information on British Transport Commission receipts for the four-week period to October 8 shows that, since the 16½ per cent. rise in freight rates in May, 1950, British Railways merchandise and livestock receipts rose 14 per cent. compared with last year, and mineral receipts 12 per cent.; this is consistent with the decline during the preceding four weeks (compared with 1949) in merchandise and mineral tonnages by 3.5 and 5.4 per cent. respectively. Coal and coke receipts, however, show an increase of 25 per cent.; the increase over 1949 in coal tonnage conveyed during the preceding four-week period, i.e., to September 10, was 1.9 per cent., with an increase in coal net ton-miles of 4.1 per cent., which (with the rate increase) yielded an increase in coal receipts for the period to September 10, compared with 1949, of nearly 24 per cent., so that, for the period to October 8, a corresponding increase in coal tonnage may be expected and of coal ton-miles. This presumably was caused by greater coal output and by some re-orientation in coal despatches by rail due in part to reduction in coal shipments overseas, as the latter mostly involve short rail hauls to ports.

The fall in British Railways passenger receipts compared with last year was 10 per cent. for the period under

review, and 7 per cent. for the first 40 weeks of 1950; compared with the first 40 weeks of 1948 receipts fell by over 13 per cent. London Transport railway receipts rose 4 per cent., compared with 1949, in respect of the period to October 8, and were slightly reduced in respect of the 40 weeks of the year; compared with the 40 weeks of 1948 they fell by 3 per cent. London Transport bus and train takings were reduced by 8.5 per cent. compared with the corresponding four-weekly period of 1949, and fell 2.4 per cent. in respect of the 40 weeks. It is not possible to state how far any of these results were affected by the London Passenger Charges Scheme.

PERCENTAGE VARIATION 1950 COMPARED WITH 1949

	4 weeks to October 8	40 weeks to October 8
British Railways —		
Passengers	- 9.8	- 6.9
Parcels	+ 14.2	+ 5.1
Merchandise & livestock	+ 13.9	+ 5.6
Minerals	+ 11.8	+ 8.2
Coal & coke	+ 25.7	+ 12.5
Total	+ 7.8	+ 2.6
Road Passenger Transport	+ 6.5	+ 7.3
London Transport —		
Railways	- 3.7	- 0.6
Buses & coaches	8.5	- 2.4
Trolleybuses & trams	- 6.8	- 3.6
Total	- 5.1	- 2.2
Inland Waterways	+ 8.2	+ 5.6
Aggregate	+ 5.9	+ 2.3

Even taking into account possible seasonal factors, such as a falling off in tourist traffic, it is difficult to account for the fall in London Transport bus takings, compared with corresponding periods of 1949, which has persisted for several months. The cause which first suggests itself is reduced public spending-power. No analysis however is possible without scrutiny of detailed statistics of all types of road traffic, including bicycles, both in the London Transport area and elsewhere in this country.

Defence Programme and the Steel Industry

SPEAKING at Birmingham, on October 5, the President of the Federation of British Industries dealt at some length with the possible effect of the defence programme on normal industrial output, expressing the opinion that there had been some underestimation of the impact of this programme on an already strained economy. Sir Robert Sinclair said that to assume all the expenditure needed for defence could be met from increased productivity was simply to put our head in the sand. While productivity had shown a substantial growth in recent years, any interruption in the flow of output caused by a switch from civil to military items must, for a time, bring the output figures down. Today, against the background of a need to make effective a defence programme estimated to absorb at least 10 per cent. of the productive resources of the engineering and shipbuilding industries, loomed the dislocation inseparable from a precipitated take-over of steel.

It would seem that for political reasons the Government has decided to ignore the advice of those best qualified to judge and who sincerely believe that postponement of steel nationalisation would render a service to the country at the present time. The Minister of Supply has chosen February 15 as the vesting date although postponement would have been possible without any amendment to the law. Meanwhile, the steel industry has shown once again its ability to go on breaking records, and the increase in output during recent months makes it practically certain that the target of 15½ to 16 million tons for 1950 will be beaten. For the first nine months of the current year there was a record output of 12,117,000 tons, which is 530,000 tons more than the record figure for the same period last year, while the annual rate of production in September was 16,964,000 tons, which exceeds the previous best rate of 15,906,000 tons a year ago.

	Four weeks to October 8			Aggregate to October 8		
	1950	1949	Incr. or decr.	1950	1949	Incr. or decr.
British Railways —	£000	£000	£000	£000	£000	£000
Passengers	8,029	8,911	882	85,711	92,103	- 6,392
Parcels, etc., by passenger train	2,611	2,285	+ 326	23,442	22,299	+ 1,143
Merchandise & livestock	7,249	6,361	+ 888	65,809	62,292	+ 3,517
Minerals	2,584	2,310	+ 274	24,358	22,498	+ 1,860
Coal & coke	6,608	5,254	+ 1,354	58,179	51,727	+ 6,452
	27,081	25,121	+ 1,960	257,499	250,919	+ 6,580
Road Passenger Transport, Provincial & Scottish —						
Buses, coaches & trolley-buses	3,161	2,967	+ 194	30,076	28,019	+ 2,057
London Transport —						
Railways	1,147	1,106	+ 41	10,961	11,032	- 71
Buses & coaches	2,292	2,505	- 213	23,737	24,331	- 594
Trolleybuses & trams	806	865	- 59	8,129	8,439	- 310
	4,245	4,476	- 231	42,827	43,802	- 975
Inland Waterways —						
Tolls	66	53	+ 13	592	526	+ 66
Freight charges, etc.	65	68	- 3	652	652	-
	131	121	+ 10	1,244	1,178	+ 66
Total	34,618	32,685	+ 1,933	331,646	323,918	+ 7,728

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

Argentine Railway Payments

October 9

SIR,—It was surprising to read in your issue of August 18 that this Commission had been furnished with funds totalling 30,786,000 pesos to pay for material bought in Britain, whereas, in point of fact, the remittance amounted to 60,786,000 pesos and was received on September 20.

Your report unfortunately caused a great deal of explanation, to make clear to our creditors that we were not withholding any payments, but that we had not yet been provided with the funds.

In addition to this, and again to our surprise, we learned in your issue of September 29 that some £500,000 has been paid by this Commission, whereas the accounts actually cleared to September 27 amounted to more than £2,000,000.

Yours faithfully,

JUAN GATTO,
Chief of Commission, Ministry of Transport,
Argentine Republic

Northgate House, London, E.C.2

[The note in our August 18 issue was actuated by satisfaction that the Argentine Government had remitted pesos to meet these debts; we pointed out that the decision to make exchange available would meet a long-standing problem and that Argentina was recognised as an important and valuable market. We did not on that occasion refer to the amount of 60,786,000 pesos, which, as our correspondent points out, was not received until two days after our comment had appeared, but we referred to it in our August 25 issue. In our September 29 issue, we stated that some £500,000 had been paid to British locomotive manufacturers and that it was expected that the remainder would be paid within a month. We went to press in the middle of that week and our statement reflected the position as known to us at that time.—ED., R.G.]

Sir Eustace Missenden on Freedom of Speech

October 24

SIR,—It is customary that the annual Presidential address to the Institute of Transport shall not be the subject of discussion at the time it is delivered. I desire to take the first opportunity, therefore, to comment on a particular statement made by Mr. J. S. Wills in his inaugural address on October 16, as it appears to me that it may otherwise create serious misunderstanding amongst the officers and staff of British Railways and of people outside the industry who are interested in its wellbeing. The extract deals with freedom of speech and is as follows:—

"It is, in my view, a vital part of the charge which our predecessors have handed on to us, that we shall provide a forum where a man may speak his mind with force and honesty. One would hardly think the principle would need emphasis in this of all generations. Yet there have been signs of reluctance to write papers and to contribute to discussions on account of apprehension about the 'official view'; and there is too great a tendency to expect or require the authors of papers to submit their work for prior approval by superior authority."

When I had the pleasure of addressing the Institute of Transport on November 2, 1948, I pointed out that one of its great advantages since it was founded had been that its members, particularly its younger members, had been able to discuss and study not only the development of the particular form of transport they happened to be interested in, but all other forms as well. I added that this wide span or scope had become particularly useful now that much of the public transport in Britain had been placed in one ownership, and that the work of the Institute of Transport would become more important as the new developments took shape.

I should like to make it quite clear that so far as British

Railways are concerned, we have always recognised the right of any member of the staff to read papers or participate in Institute discussions in his personal capacity. I have myself contributed a paper on this basis.

Naturally, in official pronouncements some care has to be exercised, but even here the Railway Executive has only desired that approval should be obtained if any such contributions (a) incorporate any statistics, data, or designs not previously made public, or (b) might be construed as an expression of the policy of the Executive on a matter of current public interest. I should add that this simple rule is far less restrictive than that applied by some of the former railway companies, who desired all papers to be submitted for prior approval before being delivered in public.

It is most important that the officers and staff of British Railways should know they are quite free to enter into discussions at the Institute of Transport or elsewhere, and that it is the desire of the Railway Executive to promote healthy discussion. It is quite clear that the references made by Mr. Wills do not apply to British Railways and never have done so since 1948. I can only hope that this letter will receive the widest possible publicity, so that any doubts which Mr. Wills may have created will be dispelled.

Yours faithfully,

E. J. MISSENDEN,
Chairman,
The Railway Executive

222, Marylebone Road, N.W.1

Description of Locomotive Types

October 25

SIR,—May I heartily concur with Mr. Casserley's remarks in your October 6 & 13 issue on the description of locomotives under the British Railways ownership.

Locomotives, and for that matter coaches, brake vans, and so on are certainly allocated to Regions, or rather to particular sheds and yards which are Regionally administered, but as the operators of these vehicles are as often as not a different organisation known as an Operating Area, the term Region need hardly concern the railway student, nor the public at large, but is only of interest to the employees and commercial people.

In the absence of a new standard reference for locomotives, the most satisfactory would indeed appear to be by such terms as Midland Compound, King Arthur, Stanier 4-6-0 (to use three different but established labels for three different types).

Yours faithfully,

P. M. BARNES

53, Watford Road, Radlett

Streamliner Success

September 15

SIR,—The editorial note in your September 8 issue tells of "the appeal of the modern high-speed streamline train in the U.S.A.," on the strength of the popularity of one or two special runs on the Southern Pacific. Does it not strike you as odd that the appeal ends in a loss to the railways?

Since 1935 the use of diesel-electric locomotives has grown so fast that they now work 50 per cent. of the passenger train car-miles. Yet the A.A.R. statement of revenues and expenses for the six months to June, received this week, shows a decrease in passenger revenue of 12.5 per cent. for all U.S.A. railways, of 14.6 per cent. for the Southern Pacific, and of 19 per cent. for the Santa Fe, another great operator of diesel-electrics.

The Southern Pacific can bear the loss of \$3,585,000 in passenger revenue last half year, because its freight revenue, which is 11 times as large, increased by \$11,220,000, or 5 per cent. That was an exceptionally

good result; the freight revenue of all U.S.A. railways was down 1.9 per cent. and that of the Santa Fe 5 per cent. The Southern Pacific has the highest freight traffic density of any line in the Central Western Region, 40 per cent. above the Santa Fe and 9 per cent. above that heavy freight carrier, the Union Pacific.

Streamliners or no streamliners, the massive freight traffic of the American railways pays the piper; the only question in peacetime about passenger train services is how much they are "in the red"—with the possible exception of the "New Haven."

Yours faithfully,

R. BELL

Frognaal, London, N.W.3

16-ton Steel Coal Wagons

October 27

SIR,—During the recent debate in the House of Commons on the nationalised railways, the Minister of Transport made the following statement: "The policy of replacing wooden wagons with 16-ton steel wagons was having a marked effect upon wagon efficiency." This might easily give the impression to the general public that this improvement is due to nationalisation, whereas it is only fair to place on record that that is not the case.

The introduction of this type of wagon, with its obvious economy in the transport of coal, is entirely due to private enterprise, in which this company played no small part. Strange though it may seem, as a matter of fact, the bureaucratic control of the railways refused for quite a long time our application for the up-grading of this type of wagon from 14 tons to 16 tons, and it was only by our continued persistence that they ultimately agreed to our suggestion for the up-grading of the wagons.

Yours faithfully,

DUNCAN BAILEY,
Chairman

Charles Roberts & Co. Ltd.,
Horbury Junction, Wakefield

Railway Efficiency

October 23

SIR,—The facts in regard to the appointments of district officers on British Railways are at variance with the deductions of your correspondent Mr. W. Rose, in his letter in your October 6 & 13 issue. Of the 50 most recent appointments to district officer or assistant district officer (all departments, including technical), 26 began their railway service in the ranks, 10 others entered through the ranks and were subsequently selected as traffic apprentices or improvers, and 14 entered direct as traffic apprentices, or in special technical employment.

Yours faithfully,

D. S. M. BARRIE,
Public Relations Officer,
The Railway Executive

222, Marylebone Road, N.W.1

October 24

SIR,—Mr. W. Rose, in your October 6 & 13 issue, exhibits the same personal bias as does Mr. Peter Collins in the letter to which he refers. While his facts may be correct, his inferences are open to grave doubt. A university education trains the mind to form balanced judgments far better than does a long railway experience. This is the factor that counts, not "social background."

It is true that many railwaymen, like Mr. Rose, are actively averse to these appointments. It is not true that the door has been "bolted and barred" against promotion from the rank and file to district officer level. I can quote recent examples in the Eastern Region.

In my opinion, while all university graduates do not make good railwaymen after a period of training, the proportion that do is infinitely larger than that of rank and

file railwaymen who can go through step-by-step promotion to district officer level and still retain a wide and balanced outlook on railway problems.

Incidentally, I am a railwayman (I hope in the fullest sense of the word) but not a university graduate or ex-public school boy.

Yours faithfully,

H. W. WARWICKER

7, North Station Road, Peterborough

Station Announcers

October 21

SIR,—Whilst travelling about the country by rail, and having previous knowledge of the advertised times of arrival and departure at stations on the route, it can be very annoying to be in a train which has stopped at a station, as scheduled, but, when the advertised time of departure arrives, is still stationary and remains so for anything up to one hour.

Passengers are entitled to be given some indication of the expected time of departure if a delay is foreseen by the railway staff, and a simple announcement over the loudspeaker or otherwise would indicate to travellers that they were being considered. Such an announcement would assure some passengers who had connections to make, whereas others would be able to make alternative arrangements for finishing their journeys.

When trains arrived late loudspeakers at termini could also be used to enable British Railways to apologise to passengers for the delay, an explanation also being given as passengers filed through the barriers.

Yours faithfully,

P. G. NICHOL

Oak Road, Penketh

Retaining Public Goodwill

September 1

SIR,—Few experiences raise the ire of a railway lover so much as harsh criticism of his beloved railways. Since nationalisation such criticism is often made worse by a political bias. From a pro-railway and politically neutral standpoint, however, my own experience over the last twelve months has been most encouraging. In the course of several journeys in different Regions, I found that all trains were reasonably clean and punctual, frequently with fully-equipped toilets and hot water available.

High spots included seeing a "Hunt" locomotive at Leeds in spotless livery and polished brass detail. A local train from Malton to Whitby had barely come to rest before cleaners were polishing the door handles. A holiday special from Whitby to Leeds arrived at its destination five min. before schedule. Stations on the old Furness line were very clean and bright, especially Grange-over-Sands. If my experience represents the present average standard, there is reason for satisfaction in the progress already made.

A minor leakage in public goodwill, however, came my way when a Barrow to Leeds holiday special was to be joined to a Morecambe-Leeds special at a country junction near Carnforth. The combined train proved too heavy and four coaches had to be dropped. The operation of transferring passengers was performed expeditiously by an efficient and willing staff; everyone, so far as I could see, being reseated. Nevertheless, passengers were grumbling all the way to Leeds. The sudden shock of hearing an abrupt "All Change" had done the damage. So here is an opportunity for a railway psychologist to devise a new formula for these occasions—something less like a military command, more human and friendly—such as a private motorcoach proprietor would use if requesting his patrons to change vehicles.

Yours faithfully,

WILLIAM B. STOCKS

22, Heatherfield Road, Marsh, Huddersfield

THE SCRAP HEAP

Service

Through a silly mistake I recently found myself stranded late at night in a very small country station on the way from Scotland.

After trying to fix me up at the only hotel (in vain) the stationmaster and one of his staff lit a fire in the waiting room, pulled up the sofa, gave me two first-aid blankets, and finally brought in a tray of tea and cakes.

The next morning the stationmaster awakened me with hot buttered toast and tea.—From a letter to the "Daily Graphic."

86-Year-Old Engine in Sierra Leone

Railways in Sierra Leone are adopting the British fashion of naming their locomotives and each engine in the service is soon to be fitted with a plate displaying the name of one of the Chiefdoms through which the line runs.

There will be one exception, however, for the shunting engine known over the Sierra Leone system as *Nellie* will retain its old name. This engine was built in 1864. The railways took it over from the harbour contractors in 1914 and it is still in regular use.

Engine, carriage, and wagon repair systems have been replanned in the Cline Town workshops, and modern belt, stage-to-stage, methods introduced. In the newly-started school for apprentice engine drivers a full-size model of the main valve gear of a locomotive has been built from scrap.

Welsh Waterloo

Mr. J. B. Latham sends the accompanying illustration of Waterloo Station (Glamorgan) on the Caerphilly-Machen line, and served by six trains a day in one direction only! This is due to the fact that the up and down lines part company between White Hart Halt and Gwernydomen Halt, and there is a corresponding stopping point on the up

line, Fountain Bridge Halt. The platform at this particular Waterloo consists of four sleepers bedded in some ballast.

An Old Signal in Norfolk

A correspondent sends us a photograph, which we reproduce below, of an old cross-bar signal near Fakenham, Norfolk, on the former G.E.R. line



Cross-bar signal near Fakenham in Norfolk

from Dereham to Wells-on-Sea. The signal is situated at a level crossing, about a mile north of Fakenham, where the single line crosses the main Fakenham-Wells road. It is worked by the

crossing keeper and is not interlocked with the gates. Possibly this is the last example of a cross-bar signal still in use on a running line in this country, though one or two may survive in sidings and goods yards, and our correspondent suggests that this example might well be preserved.

Fossils at Swindon

Fossilised bones, recently unearthed during excavations for new British Railways, Western Region, buildings at Swindon, have been submitted to the Natural History Section of the British Museum and identified as vertebral bones from the neck of an ichthyosaurus, a fossil swimming reptile. Similar remains have from time to time been discovered in parts of Wiltshire and these latest finds are being handed to the Swindon Museum for exhibition.

The "Royal Scot" Bell

The brass bell which was carried over 11,194 miles of prairie by the *Royal Scot* when this locomotive toured the United States in 1933 was rung at a dinner in York on October 28. This dinner brought together for their third annual convention 100 delegates of the British Region of the National Model Railroad Association Inc. The bell was presented to the engine by the Association of American Railroads and was in a place of honour on a specially strengthened dining room table.

To "The Railway Gazette"

All hail, thou bright, refulgent star,
(Perused wherever rail-men are),
We have been wandering round of late,
Bewildered and disconsolate.

You have been, so we understand,
Like other journals in this land,
Victim of some strange "comps" disease,
Or printers' idiosyncracies.

We watched, with an admiring eye,
Your struggles with adversity,
Yet we have always understood
'Tis an ill wind that blows no good.

Some articles, we dare to say,
Would not have seen the light of day,
But for these recent goings-on,
Which pass our comprehension.

Our railway brethren, 'cross the foam,
Bereft of regular news from home,
Must have bewailed, with puckered brow,
"Whatever's wrong in Britain now?"

Now, all is well; we breathe again;
We shall have tidings of the train
And what is happening the while,
In your inimitable style.

Tempered and tried by storm and strife,
You'll have a firmer grasp on life,
And, from these murky mists forlorn
Emerge resplendent as the morn.

A. B.



Halt at Waterloo on Caerphilly-Machen line served by down trains only

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

NEW ZEALAND

Record Revenues

The Railways Department's gross revenue for the year ended March 31 (£19,541,184) is the highest ever recorded, exceeding last year's record by £943,456. The substantial increase in goods traffic, particularly in the North Island, accounted for the greater part of the revenue. The passenger revenue exceeded that of the previous year by £88,447, mainly due to increase in first class and sleeping-berth travel. Goods tonnage increased by 282,131 tons to a new record of 9,948,261 tons.

Gross expenditure was £20,596,740, £896,146 more than last year. At the beginning of the year, a working loss of £2,000,000 was estimated. The actual loss was finally £1,055,556.

CANADA

New Iron Ore Line

The Premier of Quebec announced last month that work on a 350-mile railway from Sept Isles, St. Lawrence North Shore port, to Ungava iron mines would begin at once. The railway, over which Ungava iron ore will be carried to ships at Sept Isles, will take three years to build.

The Hollinger North Shore Exploration Company holds concessions covering some 3,000 of the 310,000 sq. miles area of Ungava, and 4,000 million tons of iron ore, two-thirds in Quebec Province and one-third in Labrador, have been blocked out. The company so far has spent \$10,000,000 on preliminary work and eventually will spend a total of \$100,000,000.

The Premier said plans and specifications for the railway from Sept Isles to the Burnt Creek-Knob Lake district in Ungava have been completed and construction, apart from providing work for hundreds of men, will also open up the Ungava region to general development.

UNITED STATES

Boysen Dam Railway Diversion

During the past few years the United States Bureau of Reclamation has been constructing a dam across the Big Horn River valley at Boysen in Wyoming. It is designed to impound water to form a reservoir 115 ft. deep and covering an area of 50 sq. miles. Hitherto, the Denver-Billings main line of the Chicago, Burlington & Quincy Railroad ran along this valley, and near the new dam was 75 ft. below the future normal water level of the reservoir. Accordingly, a 12-mile diversion has had to be constructed in difficult rugged country and was officially opened for traffic on August 5.

The construction of this diversion has involved the excavation of cuttings

up to 105 ft. deep, six major bridges, including one over the Big Horn River 70 ft. high and 543 ft. in length. The chief work has been a 7,131-ft. tunnel, the longest on the Burlington system. Although it is only a single-line structure, 17 ft. wide and 25 ft. 8 in. high, its construction involved the excavation of some 153,000 cu. yd. of material, and the use of nearly 78,000 cu. yd. of concrete, 1,272 long tons of reinforcement and 3,813 tons of structural steelwork in supports required for the lining.

This considerable work was necessitated mainly by the unstable material that had to be removed in one section, so that the tunnel could be founded on rock. In one section the tunnel has had to be supported by piers founded on rock, in effect making a tubular bridge of the tunnel itself.

The rail level of this tunnel will be 25 ft. below water level when the reservoir fills to its normal depth, and is near the east bank of the reservoir. Ventilation is provided by three centrifugal fans with a capacity of 600,000 cu. ft. per min., automatically controlled by the block signal system. In the tunnel 129-lb. torsion-resisting rails have been laid, but the rest of the diversion has 90-lb. track.

The inauguration ceremony was attended by the Governor of Wyoming, and senior officers of the State, railway, and reclamation bureau. It included a round trip from Thermopolis by air-conditioned special train *via* the old line to Bonneville and back by the new route. The speeches and opening cere-

monies took place at the south portal of the tunnel.

IRELAND

Diesel Developments

Mr. G. B. Howden, General Manager, C.I.E., recently announced that C.I.E. had ordered 20 diesel railcars, similar to those put into operation recently by the G.N.R.(I.). He stressed the flexibility of diesel units as one of the points which make them particularly suitable for use on Irish railways.

As an example, he said, nine-car units could be put on tourist traffic from Belfast through Dublin to Cork and Killarney, detaching a three-car set at Mallow for Killarney traffic and thereby effecting considerable economies. The railcars would be made in London, but the bodies would be made in the C.I.E. works at Inchicore.

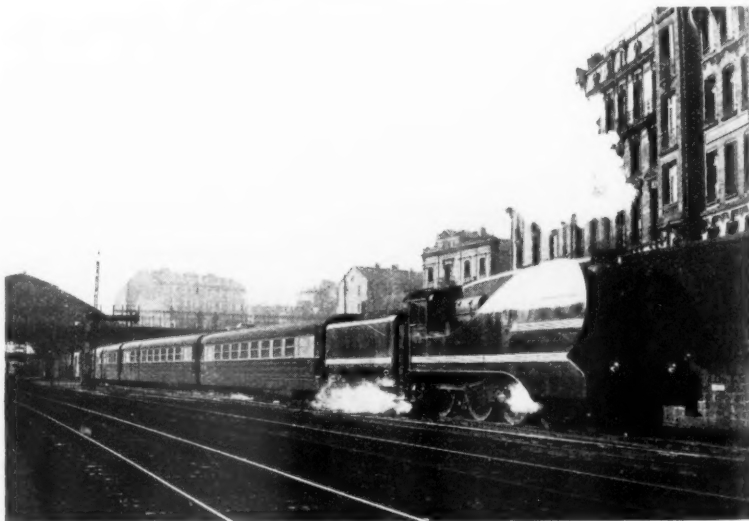
Mr. Howden said that, although capital costs on diesel-electric railcars were heavy, the comparative running costs were about 3s. 9d. a mile for steam locomotives, as compared with 11d. a mile for diesel-electric units. He also announced that C.I.E. expected to take delivery of six diesel-electric locomotives next Spring. Also ordered were four diesel railcars suitable for use on the West Clare Railway.

FRANCE

Reorganisation Plans

M. Antoine Pinay, Minister of Public Works & Transport, addressing a finance committee of the National

French Rubber-Tyre Train



Paris-Strasbourg pneumatic tyre train leaving Nancy. This set is composed of coaches with mild steel bodies built by Brissonneau & Lotz

(Photo)

(Courtesy, French Railways Limited)

Assembly on September 21, stated that the S.N.C.F. estimated deficit for 1950 had been reduced by fr.13,000 million (nearly £13 million) from fr.108,000 million to fr.95,000 million. This cut comprised: 3,000 million of economies, 6,000 million in suppression of taxes on government grants to the S.N.C.F., and 4,000 million in surplus traffic receipts. It was explained that traffic had reached its lowest point in April, but since had constantly improved.

The Minister announced that a Bill for the reorganisation of the S.N.C.F. and of the country's entire transport system would be introduced when parliament reassembled in October. The text of the bill, he said, had already been approved by the S.N.C.F. and was then under consideration by road and river hauliers. Beginning on January 1, 1951, he added, a special system of accountancy would indicate the financial situation of each of the railway lines.

In a recent statement to the press, the Minister said that co-ordination measures, which came into force last year, had produced little result. No financial miracle could balance the S.N.C.F. budget at one stroke. Its administrators had pushed economies to the maximum. The railway staff had been cut from 475,000 in 1948 to 465,000 in 1949 and 445,000 in 1950. Pension payments to 300,000 pensioners formed 13.4 per cent. of the total staff expenditure. This would be gradually

reduced by raising the age limit from 55 to 60. Railway workshops were in excess of present needs, but this problem would be solved by work for rearmament.

These economies would be supplemented by a more fundamental reform intended to make secondary lines more profitable. The railways are to be divided into two operating systems. The main lines (14,880 miles) remain subject to the existing regulations, while operation of the secondary lines (10,540 miles) is simplified. More railcars are to be run, enabling staff to be dispensed with at small stations, and subsidiary road services may replace some lines.

Whatever the success achieved by such measures, he stated, a deficit would remain. The State would have to meet this by a government grant or by authorising higher tariffs. As higher fares would only force passengers to cars or to remain at home, an increase in freight rates seemed inevitable. The S.N.C.F., which derives 73 per cent. of its receipts from freight traffic, would thus be assured of some increased revenue.

50-cycle Traction

Electrification of the single line from Aix-les-Bains to La Roche-sur-Foron with 50-cycle single-phase supply fed to the catenary at 20,000 V, has been completed as far as Annecy, about midway. The first trial run took place on Saturday, September 16.

Publications Received

B.B. & C.I. Annual. Published by the B.B. & C.I. Railway Magazine, Churchgate, Bombay. Price Rs.2, plus As.8 postage overseas.—Articles on subjects ranging from the history of the permanent way in its evolution from the wooden rails used by miners in the 16th century, and a biography of Brunel, to stories of life in India and accounts of Indian mythology make this excellently produced annual of lasting interest. The photographs and other illustrations, a number of which are in colour, are of the same high standard as the text, and fidelity of reproduction has been facilitated by the use of art paper of a quality unfamiliar to readers in Britain since before the war.

Marine Borers and Methods of Preserving Timber against their Attack. Leaflet No. 46, published by the Forest Products Research Laboratory of the Department of Scientific and Industrial Research, Princes Risborough. 7 pp. 10 in. x 6 in. Illustrated. Gratis.—This concise little work gives a good idea of marine borers and their inroads upon timber immersed in sea water, especially in warmer climates. The teredo is perhaps the most notorious attacker of piles and other timberwork in this country, and though usually small, can grow to be 4 ft. long and $\frac{1}{4}$ in. dia. It bores inwards at right angles to and then turns parallel to the grain,

and may hollow out a timber comparatively rapidly without the damage showing appreciably on the surface. Much smaller are the crustacea, which are related to the shrimp or lobster, and damage timber surfaces.

Concrete is the most suitable protective coating for piles, and creosoting is an effective preservative, but deep impregnation is essential. The sapwood of a round pile provides the most absorbant medium, and impregnation should be carried out after all cutting and boring of the timber has been completed.

Pressed Metal. Productivity Team Report. London: The Anglo-American Council on Productivity, 21, Tothill Street, S.W.1. 9½ in. x 7 in. 52 pp. Illustrated. Paper covers. Price 2s. 6d.—The productivity team representing the pressed metal industry visited U.S.A. in the summer of 1949 under the leadership of Mr. J. M. Phillips, Managing Director of Motor Panels (Coventry) Limited. This team shares the conviction of other productivity teams that "productivity consciousness" must be developed in this country if increased output is to be achieved; it recommends more efficient utilisation of labour and machines and increased use of mechanical handling equipment with improved line production methods and plant layout. The report stresses the importance of standardisation in large-volume production, but states that the

BULGARIA

Makoevo - Sopot Line

The standard-gauge line between Makoevo and Sopot, north-east of Sofia, which has been under construction for several years, is one of the lines to be completed in the 1949-1953 Five-Year Plan. It forms an eastward extension of the 29-mile line branching at Ilienci from the Sofia-Pleven-Varna main line and, as it traverses the Balkan Mountains, it has proved extremely difficult to build.

By the end of August last, according to a recent report from Moscow, the longest tunnel on the new line, and the longest in the country, was pierced. It is to be known as the Yeli Dol (Yeli valley) tunnel and is situated near Klisura, some 45 miles east of Makoevo. The building of this tunnel, begun in 1941, was discontinued later in the war but resumed after September, 1944. Further east, another tunnel, to be known as Koznica, is reported to be nearing completion.

At Sopot the new line will join the short link from Karlovo, on the standard-gauge line from Plovdiv (42 miles north of Plovdiv). With the already existing railway between Karlovo and Tulovo, 49 miles further east (on the Rakovski - Stara Zagora - Gorna Orjahovica - Ruse south-north main line) the new line will complete the shortest connection between Sofia and Burgas.

"reason for the high rate of American productivity is not to be found in technical skill. The level of inventiveness in Britain is at least as high as in U.S.A., but the practical application . . . of inventiveness is far more intensive in America than in Britain"; this application is made possible by large-volume production. The team's recommendation of an association of firms in the industry "for the interchange of ideas and for research into problems affecting pressing techniques and production methods" is already fulfilled by the Sheet & Strip Metal Users' Technical Association, which is capable of expansion in the directions that the team would desire.

Heat-Resisting Steels.—An illustrated brochure has been issued by Hadfields Limited, East Hecla Works, Sheffield, which deals in considerable detail with the application of heat-resisting steels in various industries. The brochure contains the salient characteristics of principle brands of Era H.R. steels and tables and giving their physical and mechanical properties. Included are instructions, illustrated by diagrams, on electric and oxy-acetylene welding procedure. Reference is also contained in the brochure to steels suitable for high temperature service, turbine blading, and valves for internal combustion engines. Also included are lists of home and overseas agents together with the range of products of their several works.

The Railway Situation in U.S.A.—6*

Inequalities in regulatory laws

(From a Correspondent)

ON behalf of the Association of American Railroads, a long statement, entitled "Inequalities in, and Inadequacies of, Existing Regulatory Laws," was submitted to the Senate Interstate & Foreign Commerce Committee by Mr. W. L. Grubbs, General Counsel, Louisville & Nashville Railroad. His evidence sought to prove that:

(i) Government policies in land and water transport do not provide for equal regulation, being unfair to the railways and partial to their competitors;

(ii) there is inequality and unfairness in the regulation of air carriers; and

(iii) certain inadequacies exist in the Federal laws under which railways are regulated.

Exemption from Regulation

Mr. Grubbs began by showing that the Interstate Commerce Act contains "escape" provisions through which much transport goes unregulated. Part 2 of the Act, covering road motor carriers, does not apply to vehicles used solely for carrying livestock, agricultural commodities, or fish. While the Interstate Commerce Commission regulates about 20,000 carriers of general goods, twice as many "exempt hauliers," as they are commonly called, do not come under its authority. These exempt hauliers have raided railway traffic seriously. For example, the railways carried 84 per cent. of the fruit and vegetables forwarded from Florida in the 1945-46 season. During the season ended March, 1950, their share of the business fell to 49 per cent. and they lost the equivalent of some 60,000 wagon loads to road transport.

The railways must publish their rates and cannot alter them quickly. The exempt haulier is free to fix whatever rate will secure the traffic. Again, the railways must accept any traffic for any place, but the exempt haulier will not take a consignment for a locality where he is not likely to get a return load. Often he arranges a return load of ordinary goods by the subterfuge of leasing, for the back trip only, his vehicle and the driver to the trader who owns the merchandise. The haulier then becomes for the return journey a lessor of equipment and a motor vehicle operator for the lessee.

The A.A.R. considers that the exemption should be removed and the practice of trip-leasing prohibited.

Domestic Water Transport

Under Part 3 of the Act the preponderance of domestic water transport is not subject to the jurisdiction of the Interstate Commerce Commission. In the main, water transport is used for bulk commodities, and these are exempt from

regulation. Rail and water carriers compete keenly for these heavy traffics. Mr. Grubbs argued that it was unfair to the railways in the competitive struggle to have to adhere to their published rates, while the water carriers were free to make any terms which would obtain the business. He urged the elimination of the bulk commodity exemptions.

Inequalities of Regulation

A railway is prohibited from carrying in interstate commerce any commodity, other than timber, which it produces or owns, except materials for its own use. Mr. Grubbs advocated the extension of this law to road and water carriers for hire.

Railways and domestic water carriers cannot charge more for a shorter than for a longer haul over the same route, or more as a through rate than the aggregate of intermediate rates. The long and short-haul clause was passed, when railways appeared to have a monopoly, to protect small traders and communities. Now the clause simply prevents the railways from meeting the competition of road and water carriers who are at liberty to pick and choose the traders and communities they serve. The railways believe that the clause should be repealed as it could not be extended to motor carriers, many of whom operate only between large centres.

Another inequality arises over the making of special contracts with particular traders for the carriage of their freight. The railways are forbidden to enter into such arrangements, but the Interstate Commerce Act allows a special class of "contract carriers" to operate on roads and waterways. These carriers discriminate as they please and their actual charges are not known to competing common carriers. By virtue of their preferred position, contract carriers have diverted large volumes of traffic from the railways. The A.A.R. therefore recommends that contract carriers be required to publish their rates and that the Commission be given power to prescribe just and reasonable rates for contract carriers.

After referring to the less restrictive regulation of airlines which was discussed in No. 5 of this series of articles, Mr. Grubbs advocated an amendment of the law to permit surface carriers to obtain air operating rights where that would be in the public interest. He also objected to the restrictions which the Interstate Commerce Commission imposes on a railway which acquires motor-carrier operating rights.

Powers of I.C.C.

There is always a lag between increases in prices and wages paid by the railways and the receipt of authority to advance rates and fares. In the last general rate increase case, three months

elapsed before the railways could put an interim increase into force, and 11 months before they were able to make effective the full advance, which the I.C.C. ultimately granted. A longer lag occurs before the railways obtain authority from the state commissions to advance interstate rates and fares. To take an extreme case, the railways of Alabama alone lost freight revenue to the amount of \$11,400,000 in the three years 1947-49, because the State Public Service Commission used every legal process to delay the application of I.C.C. decisions to local charges.

The A.A.R. recommends that Congress call on the Commission to exercise its rate making functions sedulously so as to increase railway revenues to the point where adequate and efficient service can be assured and a sound credit position established. At the same time, the railways wish the Commission to have power to intervene in cases where a state seeks to ignore one of its general rate decisions.

Unprofitable Passenger Services

A further proposal would give the Commission power to authorise the discontinuance of unprofitable passenger train services, which are a heavy drain on the railways' net revenue. In the contrary direction, Mr. Grubbs said that the Commission should exercise greater restraint in granting leave for new transport services. The existing supply of transport of all types is excessive for peacetime needs, and the A.A.R. proposes that Congress should direct the Commission to satisfy itself that existing carriers are not able to handle the business economically before issuing a fresh licence.

RAILWAY ENTHUSIASTS KILLED IN U.S.A. ACCIDENT.—Eight persons were reported killed and many injured when two trains specially chartered by members of the National Model Railroad Association collided head on near Milwaukee, Wisconsin, recently. The Association had arranged round trips into the countryside near Milwaukee, and one train was returning while the other was on the way to the suburban area of Hales Corners.

INSTITUTE OF TRANSPORT: NORTHERN IRELAND SECTION.—Through the courtesy of the Ulster Transport Authority 35 members of the Northern Ireland Section of the Institute of Transport paid a visit to the new U.T.A. engineering workshops at Belfast on September 21. Tea was served to the members in the canteen before leaving the works. The workshops are divided roughly into two areas, that situated at York Road being entirely locomotive workshops and occupying six acres, two of which are covered. The main engineering workshops, which the section visited, occupy nearly ten acres, over six of which are under cover. Both rail and road vehicle construction and repair work are carried out in the same buildings.

* Previous articles in this series appeared in our issues of June 9, August 11, 18, and 25, and September 8.

The Fifteenth International Railway Congress

Exchanges of views and information on many technical questions by the five Sections

THE work of the fifteenth session of the International Railway Congress Association, held in the precincts of Rome University from September 25 to October 5, consisted chiefly in framing recommendations on technical questions after discussion of digests of a number of papers, some of which were summarised in recent issues of *The Railway Gazette*. After the opening ceremony on September 25, the five Sections began their discussions in accordance with the procedure described in our issues of September 22 and October 6 and 13. Mr. C. E. Whitworth, Assistant to the Chief Officer (Administration), Railway Executive, was appointed Assistant General Secretary of the Fifteenth Session, the General Secretary being Monsieur Ghilain, of the Belgian National Railways, with Signor Valdivieso, Italian State Railways, as Secretary of the Italian Executive Committee.

Typical of the method employed was that of Section I (Way & Works). Of the three questions dealt with, the first was: "Modern tendencies in the building of railway structures, especially bridges. Results obtained in the construction of railway bridges in reinforced concrete; future prospects of pre-stressed concrete." Ten draft conclusions had been prepared by the Special Reporter, Signor G. Polsoni, of the Italian State Railways, and these were discussed at the opening meeting of the Section.

In design, particularly dynamic loading and provision for fatigue, it was agreed that other than on American railways the live loadings now adopted were reasonably comparable and that a limit had been reached. Further research into the eventual recovery of the structure of the metal after dynamic loading was advocated.

Metal Bridge Design

Regarding metal bridges, it was agreed that decks of entirely metal construction were generally adopted where construction depth was limited, the universal practice being to fix the rail bearers between the flanges of the cross girders, bridging pieces being provided for continuity. This not only reduced the construction depth but facilitated the satisfactory fixing of the rail bearer to the cross girder. It was considered that this method of fixing was at least as satisfactory as when the rail bearers are placed on top of the cross girders. Welding of site connections is infrequent but is being developed. The use of reinforced concrete decks on metal bridges has been adopted in recent years in conjunction with ballasted tracks with certain advantages. Plate girder construction is simpler up to spans of 100-125 ft. For longer spans lattice girders of the simplest type are used. Welding has been adopted for the con-

struction of medium span plate girder bridges with success, but only one case has been reported of the construction of a completely welded lattice girder bridge. Regarding combined steel and concrete constructions, designed deliberately for composite action, it was agreed that this solution might be of interest for simple spans up to 100-125 ft. Continued observation was essential with regard to shrinkage of the concrete and the bond between concrete and steel. As to arched bridges of concrete or stone and underbridges comprising girders encased in concrete, it appeared that there was little difference in practice on different railways, though in some countries pre-stressed concrete is used for overbridges.

Use of Pre-stressed Concrete

The last recommendation on Question I dealt with the use of pre-stressed concrete. After discussing suitable spans it was finally agreed that: "There is need for more information on certain technical details relating to the practice and application of pre-stressed concrete."

In a subsequent exchange of views the question was raised by a French delegate as to the practice common in Great Britain, of encasing girders in concrete whether a good bond could be obtained between the concrete and the bottom flange. A British delegate, Mr. W. Y. Sandeman, Civil Engineer, Scottish Region, replied that the concreting is done under shop conditions with the girders upside down, this practice giving complete satisfaction. Reference was made to the use in Great Britain of a cast-iron casing, the space between this and the girder being filled with red lead. The waterproofing of pre-stressed concrete was also discussed.

On the second question: "Rail joints: Improvement in fishplated joints: Use of long welded rails: Optimum length in relation to the safety and good condition of permanent way: Expansion gaps—determination of standard allowances," the Special Reporter, Monsieur Leduc, of the French National Railways, had drafted no less than 29 conclusions.

It was agreed that there had been no considerable modification of the traditional fishplate joint, and that complicated arrangements to provide a continuous running surface did not give the advantages hoped for, and that slant cutting of rails was not favoured. The joint supported on a single sleeper was falling into disfavour except in the U.S.A. and in India. In the latter country, said Mr. K. C. Bahkle, Chief Commissioner of the Indian Railway Board, use of a single cast-iron sleeper was giving satisfaction.

Most railways considered that joints should be opposite each other except in some instances on sharp curves. The Pennsylvania Railroad, however,

adopted the staggered joint as standard, but no delegate from that administration was present to argue in favour of this practice. Mr. J. I. Campbell, Civil Engineer, Eastern Region, insisted that staggered joints would cause rolling which would be accentuated when resonance arose and would only be satisfactory if there was perfect maintenance. Mr. Bahkle raised the question of short stagger; in India, he said, many hundreds of miles had been laid with a short stagger equal to half the distance between the wheels of a bogie, with marked success. A resolution that reference to this should be made in the conclusions was defeated by a narrow majority.

With regard to the matching of rails, some delegates considered that rails should be correctly matched when laid and that, if possible, rails from the same ingot should be placed together. Others thought that this was putting too heavy a burden on those responsible for relaying, and that a better solution would be to reduce the tolerances allowed to the rolling mills. Matching of rails in serviceable relaying was not disputed.

Regarding the problem of eliminating the joint as far as possible by the use of the long welded rail, it was agreed that studies and experiments should be continued with a view to discovering the best method of containing the stress in the rail so as to avoid any possibility of distortion.

Rail gaps were not discussed at length, but it was agreed that expansion spaces could be less than those theoretically calculated on a free expansion basis and that the more the track resisted creep the smaller this gap could be left.

Marshalling Yard Layout

On the question of new technical methods adopted on the design and construction of large marshalling yards, 35 conclusions were drafted by the Special Reporter, Monsieur Marchand, of the French National Railways. At one of the meetings delegates from Section III (Working), joined the discussions. Mr. V. M. Barrington-Ward, Member, the Railway Executive, stressed the importance of locomotive depots in the design of new and re-modelling of existing yards, as such depots were very costly. Monsieur Marchand said that provision of two lines over the hump shortened the head of the siding group, and allowed of continuous shunting and of maintenance of the track without interference with shunting when two humping locomotives were employed. Regarding provision in the switching area beyond the railbrakes of a length on the level or on a slightly falling gradient, Messrs. E. W. Rostern, Operating Superintendent, Eastern & North Eastern Regions, S. E. Parkhouse, Chief Officer (Operating), Railway Executive, and

J. W. Watkins, Operating Superintendent, London Midland Region, drew attention to British practice, where use of grease boxes often results in bad rolling wagons.

Mr. Barrington-Ward regretted that it had not been possible to produce a balance sheet showing the economies effected by mechanisation and suggested that this might be discussed at a future Congress.

Regarding radio communication between control points and drivers of shunting engines, Mr. Barrington-Ward and Mr. H. Rudgard, Chief Officer (Motive Power), Railway Executive, thought it better that in the present state of development drivers should always have a visual signal. Regarding yard lighting, Messrs. Barrington-Ward and Watkins expressed their opinion that flood lighting was not entirely satisfactory, especially in foggy areas, and that spot lighting was better suited to operating requirements.

Design of Rolling Stock

If the foregoing shows the ground covered by one Section, and the extent to which questions could affect more than one Section, the other four dealt with wide ranges of problems. Thus Section II (Locomotives & Rolling Stock) under the chairmanship of Lord Hurcomb, Chairman of the British Transport Commission, discussed *inter alia* aspects of the question "Comfort of passengers in coaches, railcars, and electric motor coaches"; these included fluorescent lighting and the employment of non-corridor stock. On the question of increasing the mileage between repairs by improved design of wheels, tyres, axleboxes, springs, and so on, the speakers included Messrs. O. V. Bulleid, Consulting Mechanical Engineer, Coras Iompair Eireann, R. C. Bond, Chief Officer (Locomotive Construction & Maintenance), and E. Pugson, Chief Officer (Carriage & Wagon Construction & Maintenance), Railway Executive, and G. S. J. Read, New Zealand Government Railways, who explained many points of practice on their own systems. Papers on transmission systems in electric locomotives, motor coaches, and diesel electric railcars were discussed at considerable length.

In addition to the joint discussion into Section I on marshalling yard layout, yards were also discussed from the more purely operating standpoint by Section III (Working). Messrs. Barrington-Ward and Parkhouse stressed the British point of view regarding the return of train engines to depots without delay; they should not be used for shunting except in special circumstances. Another topic was numbertaking and wagon examination and repairs; a discussion took place, led by British delegates, on the desirability of a second check before departure of the wagon from the yard, which it was agreed was only to detect wagons which might have been damaged in the yard.

The importance of the selection of yard management was stressed by Mr. W. P. Allen, Member, Railway Execu-

tive. Regarding a bonus system for yard staff, Mr. Allen thought it very hard to put such a system into force; it should not be limited to shunters, as all yard staff (pointsmen, drivers, and so on) were concerned with yard efficiency. It was better to rely on the selection and training of the staff, and on their interest in their work.

Speed Signalling

Many questions relating to signalling and safety installations were also discussed by Section III. In a debate on speed signalling, Mr. John Elliot, Chief Regional Officer, London Midland Region, said that in the experience of British Railways, on which the density of traffic was in some cases the greatest in the world, it was not necessary to have any system of speed signalling. Lt.-Colonel G. R. S. Wilson, Chief Inspecting Officer of Railways, Ministry of Transport, contested a suggestion by a French delegate that certain accidents in Britain had been caused by absence of speed signalling; the more complex the system, the greater the risk of accidents, and in certain countries, such as U.S.A., where elaborate signalling systems were in force, there was a tendency to revert to greater simplicity.

On the subject of road and rail transport, also discussed by Section III, a discussion arose on the desirability of the railways providing terminal transport, which it was agreed could be provided by the railway itself, but due regard must be paid to the wishes of certain traders to use either their own road vehicles or vehicles operated by a public haulage firm. Regarding contributions by the railways to the cost of building private sidings, Mr. David Blee, Member, Railway Executive, said that such contributions could not be considered in Great Britain, as it was in the interest of traders to have a direct rail connection; there was no reason for the railway to accept further financial burdens. Recommendations of a somewhat non-committal nature were agreed regarding containers, rail-road trailers, wagon transporters, and the building of special wagons.

General Questions

The questions dealt with by Section IV (General) differed widely. They included a long and involved discussion on railway accountancy, in which speakers included Mr. Miles Beevor, Chief Secretary, and Mr. C. E. R. Sherrington, Research Officer, British Transport Commission, Mr. Blee, and Mr. A. A. Harrison, Executive Officer (Road Transport), Railway Executive.

Also discussed was the organisation and development of railway medical and welfare services. Mr. G. B. Thorneycroft, General Secretary of the Railway Clerks' Association, emphasised the importance attached by H.M. Government to the participation of railway employees in the recruitment of medical personnel, and the efforts made by the B.T.C. to enlist the co-operation of staff at all levels in this connection. Other speakers on this topic were Mr. Allen and Dr. H. H. Cavendish Fuller, Chief

Medical Officer, Railway Executive, and Mr. G. J. A. Lindenberg, Advisory Engineer to the High Commissioner (London) for South Africa.

The General Section dealt also with the question of construction of new, and continuance of operation of existing lines. Mr. Miles Beevor summarised conditions prevailing in Great Britain in regard to the closing of lines, and showed how the problem was solved by integration of transport. Mr. Sherrington pointed out that in a survey of the volume of traffic justifying closing of a line, the existence of subsidies which may be granted by the State should be borne in mind. Mr. Harrington explained British Railways procedure in surveying and reporting on possible unprofitable sections of line.

Light and Colonial Railways

Three questions were examined by Section V (Light Railways & Colonial Railways). The discussions on modernisation of maintenance methods of light railway topics included measured packing, weed-killing, and the size of gangs. The adoption of diesel in preference to steam traction was the subject of a lengthy debate, in which views were exchanged on widely different ideas and practices in different countries; the speakers included Mr. J. O. Sanders, General Manager, Malayan Railway. The wording of the recommendations of this Section seems to show that while individual opinion was wholeheartedly in favour of extensive dieselisation, both for "light" (in the accepted British sense) and even more for narrow-gauge tropical railways in most circumstances, many delegates hesitated to commit themselves wholeheartedly to an official approval of dieselisation. Discussion of signalling on single-track lines ranged over many subjects, including automatic signalling, and telecommunications. Certain delegates mentioned that radio-telegraphy is in use in Indo-China and on the Mediterranean-Niger Railway.

In addition to the discussions of the five Sections, plenary sessions of the Congress were held, at which the Section recommendations were approved, and general Congress business conducted. Delegates were also given opportunities of inspecting objects of technical interest in and around Rome, such as the Pirelli tyre and rubber manufacturing plant, Tivoli, and the new passenger terminus described in *The Railway Gazette* issue of July 29, 1949.

Hospitality to Delegates

The Italian Ministry of Transport and the Italian State Railways were lavish in their hospitality to delegates and their ladies. A banquet was given by the Ministry of Transport on September 28, attended by some 1,100 guests, including Italian Government representatives. Signor D'Aragona, Minister of Transport, and Signor Giovanni di Raimondo, Director-General of the State Railways (and Chairman of the Italian Executive Committee of the

(Continued on page 392)

The International Timetable Conference

Accelerations next Summer of the "Rome Express" and "Simplon-Orient Express" and services from London and Paris to Scandinavia

THE International Timetable & Through Carriage Conference was held this year in Amsterdam, from October 11 to 21. Details of the chief arrangements for Continental services between May 20 and October 6, 1951, next year, decided on at the Conference, are given below.

London—Paris

The service *via* Folkestone-Boulogne will operate daily from June 22 with 9 a.m. departure from Victoria. This will give an arrival in Paris at 5.12 p.m., in time to connect with the principal night expresses from Paris.

The two trains from Calais connecting with the morning services from Victoria will both run to Paris Nord. This working should be more convenient for passengers wishing to reach Paris Nord, Est and Austerlitz stations. At present British passengers to the Riviera travel direct from Calais to Paris Lyon by the "Blue Train" and "Côte d'Azur" express, but from May 20 these expresses will run from Calais to Paris (Lyon) *via* the Gare du Nord.

The possibility of providing a rail-car service from Boulogne to Paris in connection with the 4.30 p.m. from Victoria *via* Folkestone-Boulogne next summer is to be examined by the French Railways. This service would give an arrival in Paris at about 11.20 p.m.

Passengers by the "Night Ferry" from London *via* Dover-Dunkerque will arrive in Paris at 9 a.m. instead of 9.15 a.m.

The day service *via* Newhaven-Dieppe will leave Victoria at 10.5 a.m. and arrive Paris (St. Lazare) at 6.20 p.m. A relief will leave Victoria at 8.35 a.m. on Saturdays during the Summer, giving an arrival in Paris at 5.10 p.m. In addition, there will be a night service during the Summer between London and Paris (Victoria dep. 8.20 p.m., Paris St. Lazare arr. 5.43 a.m.). In the return direction departures from Paris will be 9.30 a.m. on Sundays during the Summer, 10 a.m. (daily) and 9.55 p.m. (Summer only).

Services to Belgium

Services to Belgium *via* the Dover-Calais and Dover-Ostend routes will be similar to those of 1950. Departures from Victoria will be 10 a.m. (*via* Ostend), 10.30 a.m. (*via* Calais), 2.30 p.m. (*via* Ostend), 11 p.m. (*via* Ostend). The last-named service will operate every Friday night from July 13 to September 7, 1951.

In addition to the service *via* Calais-Dover, there will be departures from Ostend to Victoria *via* the Ostend-Dover route at 10 a.m. (daily), 2.30 p.m. (daily) and 12.30 a.m. (Sun.-Mon. night). The 12.30 service will run every Sunday night from July 15 to Septem-

ber 9, and passengers will arrive in London on Monday morning (instead of Sundays as last Summer).

Western France Services

Through carriages will run from St. Malo to St. Brieuc for passengers by the direct Southampton-St. Malo service. The provision of through coaches to South Brittany will be considered.

There will be a through train from St. Malo to Bordeaux in connection with the steamer *Falaise*, and to provide the connection with the return train from Bordeaux the steamer will sail from St. Malo at 9.15 p.m. The service to and from St. Malo by the direct route will be similar to that of 1950, and there will be sailings three times a week each way during the Summer.

Swiss Services

By the Short Sea routes there will be departures from Victoria at 2 p.m. (*via* Folkestone-Calais) and 4.30 p.m. (*via* Folkestone-Boulogne). The 4.30 p.m. service to Basle, Lucerne, Interlaken and Chur will operate daily from June 30 to September 9 inclusive. Through trains will also be provided from Ostend to Switzerland in connection with the Dover-Ostend services.

Services to Austria and Italy

The Calais-Vienna through service (first and second class coach and sleeping car) will connect with the 2 p.m. from London (Victoria) *via* Folkestone-Calais daily during 1951, and these vehicles will be attached to the "Arlberg Express" at Basle.

The Boulogne-Innsbruck service (Victoria dep. 4.30 p.m.) instituted during 1950 will be repeated in 1951. There will be a through train from Basle to Innsbruck and Salzburg.

The "Rome Express" will leave Paris Lyon at 7.45 p.m. and reach Rome at 4.20 p.m. (instead of 6.30 p.m.) the following day. The through portion from Calais for Rome will leave Calais at 2.47 p.m., and passengers for Rome *via* Modane will depart Victoria at 10.30 a.m. The delay at the Franco-Italian frontier will be considerably reduced. The journey time between Paris and Rome for sleeping car passengers will be reduced by 2 hr. 5 min., and by 1 hr. 53 min. between Rome and Paris. The Calais-Rome through ordinary coach will be attached to a later train from Modane and passengers in this coach will arrive at Rome at 7.10 p.m. Inwards, the "Rome Express" will leave Rome at 12.5 p.m. (instead of 11.10 a.m.) and reach Paris at 9.30 a.m.

Simplon-Orient Express

This express will revert to the through working *via* Trieste, and the following reductions in journey time will be made: Paris-Trieste, 52 min., Paris-

Istanbul, 2 hr. 10 min. Passengers from London for Turkey will leave Victoria at 10.30 a.m. and arrive in Istanbul at 8.20 p.m. on the fourth day after departure from London and Paris.

The "Simplon-Orient" will leave Paris Lyon at 8.30 p.m. nightly, reaching Milan at 8.35 a.m., and Belgrade at 7.35 a.m. Through sleeping cars will run from Calais to Trieste and Paris to Belgrade and Istanbul. In the direction from Turkey to London the "Simplon-Orient" will depart Istanbul at noon and passengers will arrive in London at 7.50 p.m. on the fourth day. Journey time reductions of 4 hr. 18 min. between Istanbul and Paris and 1 hr. 23 min. Trieste-Paris will be effected.

Taurus Express

The "Taurus Express" will connect at Istanbul with the "Simplon-Orient" on Mondays and Thursdays to and from Ankara, Aleppo, and Baghdad. In the westbound direction a gain of 9 hr. 5 min. is obtained, enabling passengers to reach Haydarpasa at 9.40 p.m. (instead of 6.45 a.m.). This schedule, which would reduce the journey time between Baghdad and Haydarpasa by one night is subject to agreement with the Syrian Railways.

Orient Express

The "Orient Express" will leave Paris Est at 10 p.m. commencing May 20, in connection with the 10.30 a.m. from Victoria *via* Dover-Calais. Arrival times will be: Munich 12.35 p.m., Salzburg 2.45 p.m., Vienna 8.35 p.m., Budapest 5.50 a.m., Bucharest 6.30 a.m., Prague 8.55 p.m., Warsaw 3.13 p.m.

Through ordinary coaches and sleeping cars will operate from Ostend to Vienna and Prague for passengers *via* Dover-Ostend.

Arlberg-Orient Express

Passengers from Britain by this service to Vienna will leave Victoria at 2 p.m. and the Calais-Vienna through carriage and sleeping car will continue to connect with this express in Basle. Passengers travelling *via* Paris will leave Paris Est at 10.15 p.m. and arrive at Basle, 5.35 a.m., Innsbruck, 1.28 p.m., Vienna, 10.35 p.m., Budapest, 5 a.m., Bucharest, 6.50 a.m.

Nord Express

There will be a gain of 5 hr. 23 min. between London and Copenhagen, and 2 hr. 33 min. between Paris and Copenhagen. From May 20 the portion from Ostend will leave at 8.50 p.m. (instead of 5.30 p.m.), so that passengers from London will be able to leave Victoria at 2.30 p.m. The new arrival times of the "Nord Express" will be: Copenhagen 7.32 p.m., Stockholm 8.40 a.m. (following day) and Oslo 9.20 a.m.

Passengers travelling from Scandinavia

via by the "Nord Express" will leave Oslo at 8.15 p.m., Stockholm at 9.20 p.m. and Copenhagen at 9.35 a.m., arriving in Paris at 10.40 a.m. and, *via* Ostend, in London (Victoria) at 4.23 p.m.

Night Services via Harwich

The "Holland-Scandinavia" express between Hook of Holland and Copenhagen will be accelerated, enabling the passenger leaving London one evening to arrive in Copenhagen at midnight the next night. Departure from Copenhagen at 6 a.m. will give an arrival in London next morning. These are gains of some 6-7 hr. Correspondingly quicker connections will be possible with Hamburg and other important German centres.

A through connection off this train will serve Bad Harzburg and the through service to Hanover, which is being accelerated by three hours, will be extended to Berlin.

The Hook of Holland-Switzerland train, which is to be named the "Rheingold Express" as before the war, will be composed of special rolling stock, painted in distinctive colours. The arrival of this train in Basle will be 7.20 p.m. against 9.45 p.m.

The Hook of Holland-Frankfurt service will be accelerated and extended to Vienna, with sleeping car, and a through ordinary coach will run to and from Munich, Innsbruck, and Merano.

Day Services via Harwich

A new service to North Germany will run to Hamburg (with sleeping car), with, it is hoped, a through Hook of Holland-Berlin coach.

A greatly accelerated service between the Hook of Holland and Munich will serve Cologne, Coblenz, Mannheim, Stuttgart, and South Germany and Austria. A new through coach on this service between the Hook of Holland and Rome will connect at Basle with the principal Swiss destinations and by a change at Cologne it will be possible to reach Prague, Warsaw, and Vienna.

Harwich-Esbjerg Service

The service between London and Copenhagen *via* Harwich-Esbjerg is being accelerated by upwards of an hour and new rolling stock is to be provided for the "Englaenderen" between Esbjerg and Copenhagen.

Delegates from Great Britain, France, Belgium, Holland, Bulgaria, Denmark, Germany, Finland, Greece, Hungary,

Italy, Yugoslavia, Norway, Luxembourg, Austria, Poland, Portugal, Roumania, Sweden, Switzerland, Czechoslovakia, Turkey, the U.S.S.R., and some Middle East countries were present. The British Railways delegates were Messrs. R. H. Hacker, Chief Officer (Continental) Railway Executive, L. H. K. Neil, Continental Traffic Manager, Eastern & North Eastern Regions, R. E. Sinfield, Continental Superintendent, Southern Region, T. Smith, and P. C. Henley, Eastern Region, H. B. Colgate, W. Dean, and W. Robins, Southern Region.

The Conference was held in the Indonesian Institute building at Amsterdam, and excellent arrangements were made by the Netherlands Railways for the entertainment of the delegates during their short stay. On October 19, the delegates were invited to a dinner given by the Netherlands Railways at which speeches were made by Mr. F. Q. den Hollander, the President of the Netherlands Railways, Mr. D. G. W. Spitzen, Netherlands Minister of Transport, and by Messrs. Lucchini and Kradofer, of the Swiss Federal Railways.

The Conference next year will be held in Oslo from September 26 to October 6.

The Fifteenth International Railway Congress

(Concluded from page 390)

Congress), made speeches of welcome to the guests, and Monsieur F. H. Delory, President of the International Railway Congress Association and Director-General of the Belgian National Railways, replied. The dessert included iced pudding models of Italian State Railways electric locomotives and other rolling stock. A few days later, delegates were entertained by a special gala performance at the Opera of Verdi's "Aida." Amongst those present was the Prime Minister of Italy, Signor Alcide de Gasperi. In addition, the Italian State Railways organised weekend excursions to Florence and to Naples, the latter including a trip to the island of Capri. Delegates were conveyed from and to Rome by special trains; those who went to Naples had an opportunity of inspecting the *Direttissima* (direct) line between Rome and Naples, completed by the Fascist régime and built without level crossings; it was severely damaged during the fighting in 1943-44. Other delegates visited the Vatican railway and station, described in our September 15 issue.

Papal Audience

In the afternoon of October 3 delegates and their wives, with officials of the Italian Ministry of Transport and of the State Railways, were received by His Holiness the Pope in special audience at the Papal country residence of Castelgandolfo, in the Alban Mountains. Addressing them, the Pontiff commented on the rapid rehabilitation

of railways since the war, and to the qualities demanded of, and displayed by, those who had carried out the work of restoration. He expressed pleasure that the Congress had included staff welfare and training in its agenda, and referred to the advantages to be derived from international collaboration in the study of the many difficult problems with which railways were beset. Amongst those presented to His Holiness were Lord Hurcomb, and Sir Gilmour Jenkins, Permanent Secretary to the Ministry of Transport, who is a member of the Executive Committee of the International Railway Congress Association.

At the plenary session on October 4 it was announced that the next meeting of the enlarged Permanent Commission would be held in Stockholm, and the Commission was authorised to determine the venue of the next Congress.

At the subsequent final meeting of the Fifteenth Session, Signor di Raimondo stressed with great satisfaction the complete success which had attended the work of the Session, and thanked all those who had contributed to this success, including the Reporters, Secretaries, and Congress staff. Monsieur Delory, President of the Association, then announced adoption of the summaries ratified at the plenary meetings, which he hoped would prove a valuable guide to all railway administrations, and thanked the Italian Government and the Italian State Railways and the Local Organising Committee and the Permanent Commission. Then, on behalf of the Italian Government, Signor Battista, Under-Secretary of State, declared the Fifteenth Session of the Congress closed.

BERLIN MARKETING COUNCIL FORMED.—To facilitate trade between West Berlin, Britain, and the British Dominions, an advisory council has recently been set up with offices in London, Berlin, Frankfurt, and Paris. Official British, American, and French support has been given, and the organisation has received the sponsorship of the Berlin city authorities. The work of the council covers an almost inexhaustible range of products from drugs to heavy machinery in addition to the appropriate raw materials which are needed as imports for these industries. Enquiries should be addressed to the Secretary, the Berlin Marketing Council (London), Slough Estates House, 16, Berkeley Street, London, W.1.

CANADIAN RAILWAY ARBITRATOR.—Mr. Justice R. L. Kellock, of the Supreme Court of Canada, has been appointed as arbitrator to bring about a compulsory settlement of the differences between the railways and the unions which arose after the discontinuance of negotiations broken off on October 6. Under the condition laid down by Parliament on August 30, when the strike was halted, the arbitrator cannot compel either party to accept anything less than that offered by the other party in the previous negotiations. This means that he cannot reduce the 4 cents an hour wage increase offered by the railways and put in effect on August 31, the day the men returned to work. He could, however, increase that as high as 7 cents, the amount asked by the unions, and could make the award retroactive to June 1 last. The arbitrator must set a date for the establishment of a five-day, 40-hour week without loss of net pay from the present 48-hr. week. The railways have offered to bring this in next September, but the unions wish it retroactive to June 1, 1950. The arbitrator must also set the length of the new contract which the unions wish to run for one year only, while the railways want three years.

Influence of Driving Wheel Diameter on Locomotive Design

Effect when coupled wheel diameters are increased

By Geo. W. McArd, A.M.I.Mech.E.

IN every locomotive design certain elements receive prior consideration to ensure that the unit will fulfil the duty for which it is to be built. The cylinder bore and stroke, for example, are important terms in the tractive force formula, together with the driving wheel dia. and the boiler pressure. In the following notes attention is focussed more particularly on the driving wheel size, though it is obviously impossible to isolate any single element in the formula named and determine its size, or sizes, without reference to the remainder. For this reason the writer proposes to consider the effect as evidenced in the main

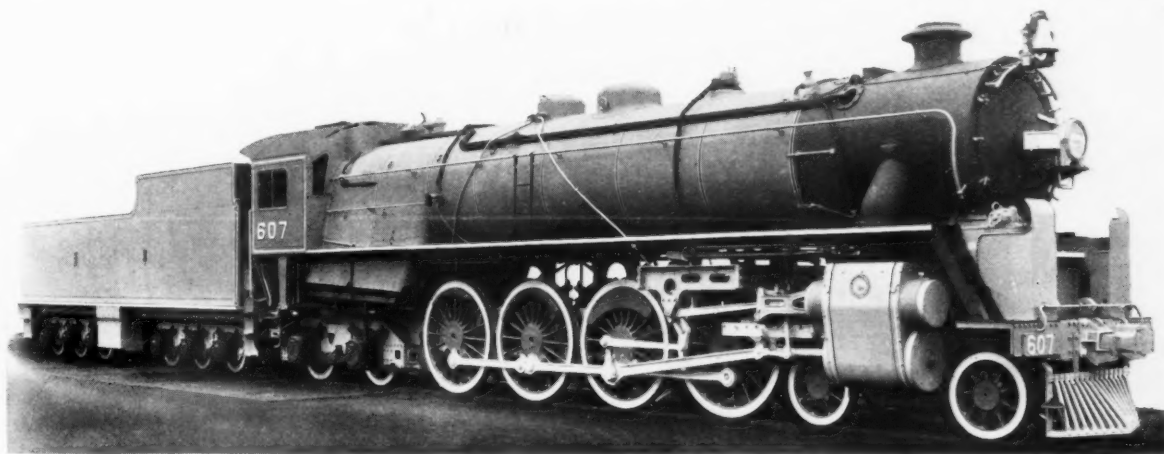
in these engines, namely, ample boiler power and adhesion, with the result that double heading was compulsory where stiff grades were encountered. Frequently a trailing engine was called in to help the train over many gradients, and even to assist the main engine when starting its train. It is only fair to add that the use of such large driving wheels severely cramped a designer and prevented him using the large dia. boiler barrel necessary for high steaming capacity.

When evaluating the tractive power of any 2-cylinder engine, the well-known formula $TP = d^2 l P / D$ is used, with

of 13 in. and wheel dia. of 78 in. and 52 in., the forward impelling force with a 78 in. wheel will be a third less than that for a 52 in. wheel.

Referring to Fig. 1, it will be found that the forward impelling force on the locomotive is the nett difference between the pressure on the front horn face due to the pull of the connecting rod, and the backward force due to the steam pressure reacting on the hind cylinder cover, and is equal to 10 tons for the 52 in. wheel, and 6.67 tons for the 78 in. wheel, assuming an average piston load of 20 tons for each engine.

Many engines have been built during



4-8-4 type engine and tender as built for the Chinese National Railways by the Vulcan Foundry Limited

design when coupled wheel diameters are increased.

In the relatively early days of locomotive history, designers would appear to have been obsessed with the idea that the attainment of fast running was dependent solely on the provision of large dia. driving wheels, and records show how far this idea was carried. Over a century has passed since Brunel fitted 8 ft. 0 in. drivers to his "Great Britain" class which appears to have reached a top speed of 78 m.p.h., though dia./speed suggests a ceiling for this engine of 96 m.p.h. Trevethick's engine *Cornwall* had even larger wheels—8 ft. 6 in. dia.—and the limit would seem to have been reached when 9 ft. 0 in. drivers were fitted to some 4-2-4 tank engines built by Rothwell & Company in 1853 for the Bristol & Exeter Railway.

All the engines named above had single drivers, but Wilson Worsdell built engines in 1896 having two pairs of coupled wheels 7 ft. 7½ in. and Aspinall's famous 4-4-2 express engines had 7 ft. 3 in. drivers, with inside cylinders 19 in. dia. by 26 in. stroke. Unfortunately, two features among others were lacking

symbol meanings as follows:—

d and l = cylinder bore and stroke, ins.

P = mean effective steam pressure per sq. in.

D = coupled wheel dia., ins.

The resulting value will vary, therefore, inversely as the dia. of the wheel,

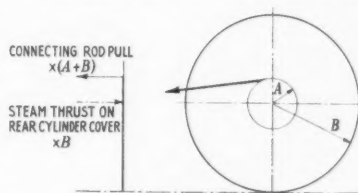


Fig. 1—Diagram showing the levering action of connecting rod pull, or thrust, on engine frames

the large wheel locomotive, where other values are common, giving a lower TP. than where smaller wheels are used. This can be shown to be merely a question of levers, as Fig. 1 clearly indicates, but, assuming a crank arm radius

the past decade with a 28 in. piston stroke, and the former Great Western Railway used 30 in. for several designs, obtaining thereby an increase of tractive power. The longer stroke, however, gives a higher average piston speed in ft. per min. when running at wheel-dia. speed, and for this reason is not favoured by some designers. A further important fact also must not be overlooked in that the longer stroke makes a greater demand on the steaming capacity of the boiler, since more steam is used per stroke. From experience with engines hauling the high-speed trains which operated on British Railways prior to 1940, piston speeds up to 1,800 ft. per min. and over were not uncommon, and evidently gave no anxiety to the running department, due, probably, to the fact that the true piston speed varies continually from zero to the maximum, with an average well within safe values.

Tractive power, however, is not the real criterion of any locomotive, as this unit, being a prime mover in the field of transport, involves prior consideration on the basis of work done within a time limit, i.e., tonnage moved through a

known distance per hr., or ton-miles per hr. Tractive power thus becomes merely a term in assessing the actual horsepower which may be developed, the latter in turn being influenced to a large degree by the steaming capacity of the boiler, the directness of the steam flow from regulator to steam chest, the design of the steam passages in the cylinder, and the type and design of the valve gear.

increased length, always assuming the dia. finally chosen to be well within the safe stress zone. The trend of modern practice, however, being towards the fitting of roller bearings for all locomotive journals, would seem to eliminate any cause for anxiety in this direction, as this type of bearing operates well at relatively high speed under load.

To illustrate the manner in which

Garratt type, for reasons that are obvious to locomotive men.

In compiling this table the following points have been assumed:—

A maximum load of 22 tons at the rail has been adopted for all coupled wheels.

A tractive effort of approximately 50,000 lb. for each type of engine.

A boiler pressure of 280 per sq. in. with a m.e.p. of 85 per cent. (i.e., 238 lb.) for calculating the tractive power available at 10 m.p.h. The total engine weight stated is exclusive of the tender weight, the latter being taken at 60 tons (mean) total weight at rail for the 2-8-0 type, and 80 tons for all others.

Engines Proposed

The engines proposed are shown diagrammatically in Fig. 2, all having been drawn to the same scale. In the writer's opinion no difficulty should be experienced in their production, except for the slow running 2-8-0 type, in which the large grate area would involve skilful design to avoid an unduly long overhang at the rear end of the engine. The large grate and increased boiler proportions in the 4-8-4 engine would call for a rear 4-wheel carrying unit somewhat

Case No.	1	2	3	4
(a) Type of locomotive	2-8-0	2-8-2	4-8-2	4-8-4
(b) Service	Heavy mineral	Fast goods	Express passenger	Heavy fast passenger
(c) Coupled wheel dia.	50 in.	63 in.	74 in.	80 in.
(d) Cylinders	20 in. x 26 in.	21½ in. x 28 in.	22½ in. x 30 in.	23½ in. x 30 in.
(e) Cyl. h.p. (Cole)	2,020	2,384	2,608	2,850
(f) Grate area (Cole)	55 sq. ft.	65 sq. ft.	71 sq. ft.	77 sq. ft.
(g) Estimated total engine weight	88 tons	115 tons	128 tons	136 tons
(h) Per cent. increase in cylinder h.p.	—	18	29	41
(i) Per cent. increase in total weight	—	30.7	45.5	54.5
(j) Max. piston speed in ft. p.m. at wheel dia. speed	1,456	1,569	1,680	1,680
(k) Max. rail speed in m.p.h. at 1,000 ft. p.m. piston speed	34.4	40.2	44.0	47.8

Heavy pulling at a moderately high speed usually achieves a greater horsepower value, and is found in the heavy fast passenger locomotives.

Before the entry of the ultra-high speed engines referred to above, designers used the well-known dia./speed value as a quick method of assessing the approximate maximum safe running speed for any engine. This term still obtains in the drawing office when calculations are in hand for many of the driving parts—coupling and connecting rods, for example—and the resulting stress when running at the high rotary speed attained at this level. Naturally, such details will receive further consideration if required for engines which are to be operated on the ultra-fast running schedules.

The high-flyer locomotive which attains a top speed of 100 m.p.h. and over, with drivers of the same dia. as those used on the normal express engine, obviously does so with a considerably increased number of r.p.m. of the coupled wheels, which demand more careful balancing to restrict the effect of the dynamic augment at the higher speeds. At dia./speed the wheels of any locomotive rotate 336 times per min., but this figure rises to 420 r.p.m. for an 80 in. wheel when travelling at 100 m.p.h., or 7 rev. per sec. This high rotary speed stresses the need for the utmost freedom of movement for the live, as well as the exhaust, steam through all pipes and cylinder passages traversed; also the advantages derived from the lively character possessed by superheated steam. In the matter of counter balancing many express engines are running today with no inclusion for the reciprocating weights, the length and mass of the engine being sufficient to nullify impulses which would be objectionable in a shorter and lighter machine.

But an increased wheel speed necessarily involves an increased journal peripheral speed, and influences adversely the value of the product of journal peripheral speed and the unit load on the bearing. This might suggest obtaining the required journal area by combining a smaller dia. with an

coupled wheel size influences the entire locomotive design, a table has been compiled, for four different engine types in which a similar coupled wheel arrangement is used. The list has been drawn up for the heavier class of locomotive—the eight-wheel coupled—as this appears to be one which is coming into increasing demand, even in the

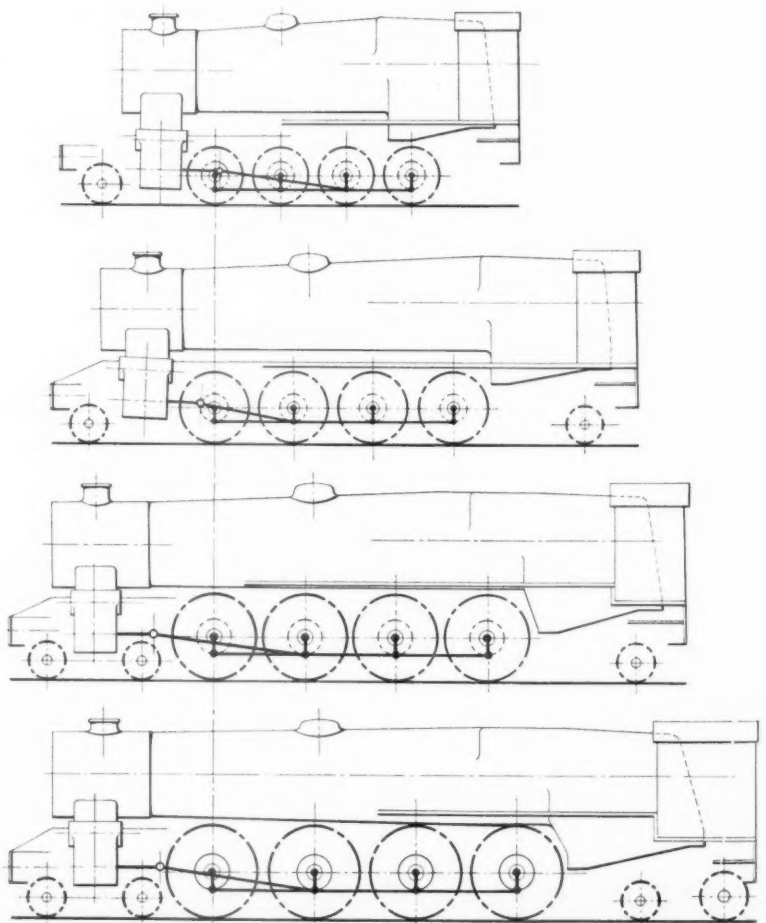


Fig. 2—Outline engine diagrams showing effect of increasing wheel diameters

as shown, and this should yield an easy riding engine with ample opportunities for the inclusion of supplementary equipment to increase the engine's overall operating efficiency.

Wheel dia. have been selected with primary reference to the maximum speed that might be called for from each type. In the case of the heavy mineral engine a maximum speed around 25 m.p.h. should be ample for its normal functions, reserving any speeds over this limit for light running. The 2-8-0 type

to enable the tractive power to be maintained with the larger wheels, the result ultimately enables a greater horsepower to be developed, and line (h) shows the percentage increase according to Cole's method of working. It has been observed that the piston stroke has been stepped-up to 30 in. in Cases (3) and (4); were 26 in. to be retained for, say, the 4-8-4 class, the cylinder bore would become 25½ in. instead of 23½ in., with correspondingly increased proportions for crankpins and rods, and, of course,

types represented and in the order stated, 2,750 drawbar h.p. is developed in the higher speed ranges at 58, 67.5, and 78 m.p.h. respectively, with approximate maximum horsepowers in the region of 2,950, 3,175, and 3,450.

In view of the increased h.p. developed and the gradual increase in cylinder proportions necessary with the larger wheels, it is obvious that the boiler capacities must be increased to keep pace, and as grate areas usually bear some relation to the evaporative heating surface provided, line (f) of the table on page 394 is illuminative. For the 4-8-2 and 4-8-4 classes, mechanical stokers would certainly be necessary, with similar equipment possibly for the 2-8-2 class also.

Weight Limitation

With the greater value of the power transmitted in the 4-8-4 class, and the latent possibilities in a modern unit of this size and type for ultra-high speed, the changes wrought by the mere increase of wheel dia. raise questions of weight limitation, this being necessary to enable the high-powered boiler and its equipment to be provided without transgressing the maximum axle load permitted. Furthermore, the large dia. of the driving wheels raises the further question as to the desirability of providing a booster on the rear axle of the trailing bogie. This unit would facilitate starting with a very heavy train under difficult conditions, and, possibly, on a stiff grade after a signal halt.

A fine example of the 4-8-4 locomotive with moderate size drivers as illustrated gives an excellent impression of what can be achieved in this direction. Leading dimensions are given below, but the clean lines of the locomotive, combined with the remarkable accessibility afforded to vital parts—valve gear, driving rods, axleboxes, and so on—give promise of what is still possible in the realm of the steam locomotive.

Cylinders (2)	...	...	20½ in. dia. × 29½ in. stroke
Coupled wheels	...	...	5 ft. 9 in. dia.
Boiler pressure	...	...	220.5 per sq. in.
Grate area	...	...	67.8 sq. ft.
Adhesive load	...	...	66 tons 18½ cwt.
Maximum coupled axle load	...	...	16 tons 15 cwt.
Total engine weight (loaded)	...	...	115 tons 16½ cwt.
Height from rail to centre line of boiler barrel	...	...	10 ft. 6 in.

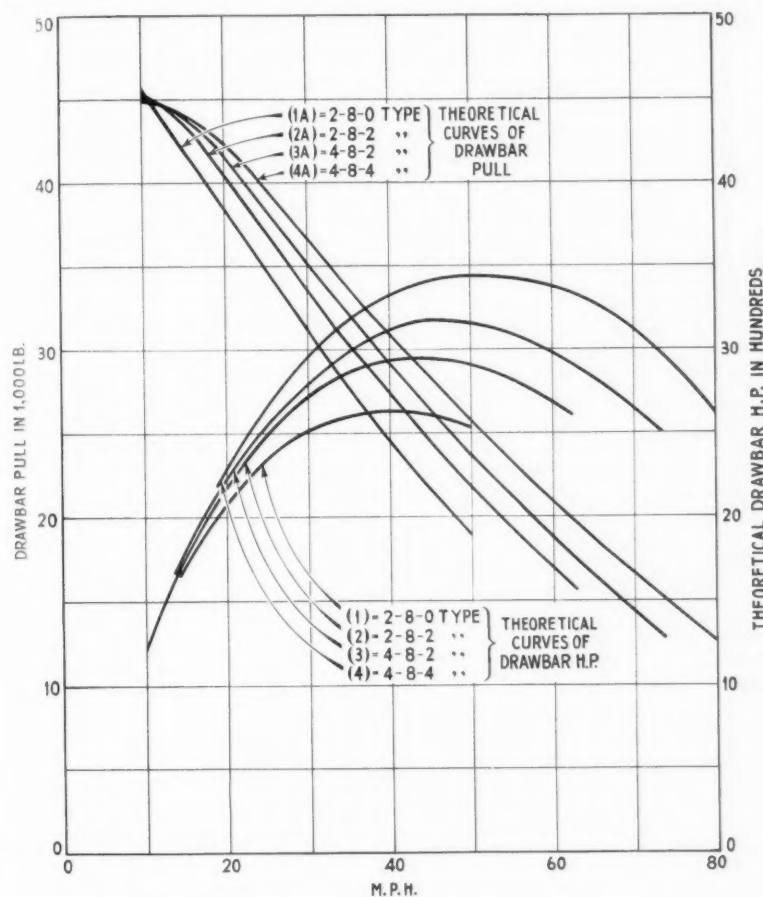


Fig. 3—Graphs showing approximate drawbar pulls for each of the four engine types shown in Fig. 2, and drawbar h.p. curves

is built normally for slow heavy haulage, and is not intended for fast running under any conditions, being less steady on the track when operating at speeds over 30 m.p.h.

In the remaining three types—the 2-8-2, 4-8-2, and 4-8-4—speed and high drawbar pull are combined in varying measure according to the wheel dia. provided, and as the tractive power and boiler pressure are kept constant, the variation necessary to obtain the required tractive power must be made in the cylinder proportions. For Cases (2) and (3) the stroke is stepped up by 2 in. and 4 in. above that chosen for Case (1).

Although the increased sizes of cylinders are essential as already stated

wheel balance dimensions. Although Cole's methods are now regarded in some quarters as somewhat out-of-date in view of the detail improvements in locomotive design, they serve quite well in the present case for comparative purposes.

In Fig. 3 graphs are shown for the drawbar pull and the expected drawbar h.p., each graph ceasing at the nominal speed limit in m.p.h. equal to the coupled wheel dia. in in. Several interesting features come to light in a study of these graphs, one of which is the wheel speed in m.p.h. at which the maximum drawbar h.p. is developed. This works out around 220 r.p.m. as an average for Cases (2), (3), and (4). On the other hand, in the three

PINCHIN, JOHNSON & ASSOCIATES LIMITED.
—The net profit of Pinchin, Johnson & Associates Limited for the year ended March 31, 1950, is £933,167 compared with £955,017 in the previous year. The reduction in combined net profits (before providing for tax) from £1,276,435 to £1,201,351, is largely due to difficult trading conditions and to special circumstances abroad which affected the profits on export business and of some of the overseas subsidiaries. During the period under review, sales and production in the United Kingdom created fresh records, and the trend of rising costs was checked by more economical productivity brought about by replanning and extensions of the main factories. The directors recommend a final ordinary dividend of 17½ per cent., less tax. This, with the interim dividend of 7½ per cent., less tax, already paid, makes a total distribution of 25 per cent.

French Railways Parcels Service in Paris and Suburbs

Improved facilities for suburbs through concentration of traffic at three centres

By C. R. Cazenave,

Paris Town Office Superintendent, French National Railways

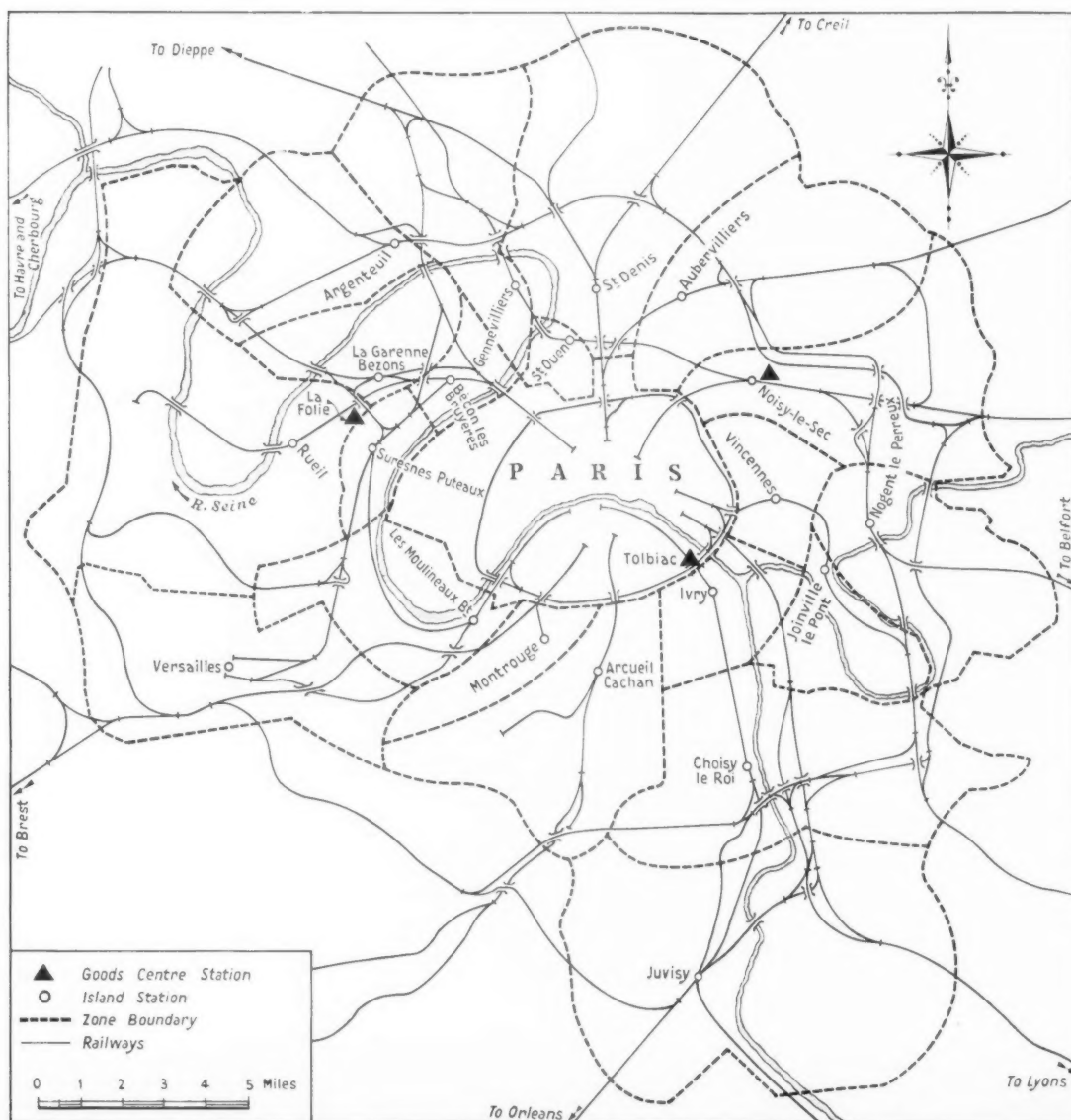
ALTHOUGH there is a substantial difference in the population of the two cities, 10,000,000 in Greater London, against 6,000,000 in the Paris area (3,000,000 in the city itself and 3,000,000 in the suburban area), London and Paris have one problem in common, that of giving a quick and yet not too expensive delivery and collection service for parcels and "smalls" traffic in the suburbs.

There is however an important varia-

tion in the problem as it affected the two cities. In London, the parcels conveyed by passenger and goods train are dealt with quite separately, the one through passenger and the other through goods stations. This is not the case in Paris. It was decided in France that, as from the beginning of 1946, the parcels hitherto forwarded by passenger trains (other than express parcels traffic) should be amalgamated with what are known in England as "smalls" and con-

veyed by goods trains and handled at goods stations.

Further, as compared with the comprehensive collection and delivery cartage service provided throughout the London and London suburban area, in Paris, out of the 174 districts included in the suburban area (an area not entirely built up, but on an average having a radius of 15 miles from the centre of Paris; see map on this page), only 121 had a delivery-to-door service. This affected



Paris suburbs, showing situations of centre and island stations in relation to the 20 new zones

only the more densely populated areas, and there was no collection service at all in the suburbs.

As a result, the position in Paris was that until 1946, although improvements in train services enabled parcels to be conveyed from Bordeaux or Lyons to Paris in 24 hrs., the journey time by rail for parcels originating in or consigned to the suburbs was much greater than to or from the city; a parcel consigned to a locality on the outskirts was usually subject to one or two transshipments in the Paris area and a journey on the *Ceinture* line before arriving at its destination station, and several days might be taken for a journey of only a

Noisy-le-Sec for traffic originating in the Eastern and Northern Regions of the State railways, which comprises a fully mechanised goods sheds, without platforms, and is equipped with three conveyor belts of a type similar to that installed at Birmingham Lawley Street; the constructional work here is nearly finished; (b) Batignolles, for traffic originating in the Western Region; (c) Paris Tolbiac, for traffic originating in the South Western, South Eastern, and Mediterranean Regions of the French National Railways; constructional work on the fully mechanised goods shed at this station, equipped with four conveyor belts, is nearly completed. Some idea

sive cartage costs. It was, therefore, considered advantageous to interpose intermediate sorting stations between the three main stations and the consignees in the suburbs, in the form of what will be known as "island stations," which are equivalent to what are known as "concentration points" on some sections of British Railways. Study of the subject by S.C.E.T.A., as also previous research by the British railways, has shown that this intermediate sorting point constitutes an economy as soon as the distance between the main station and the delivery zone to be covered exceeds some four miles.

Island Stations

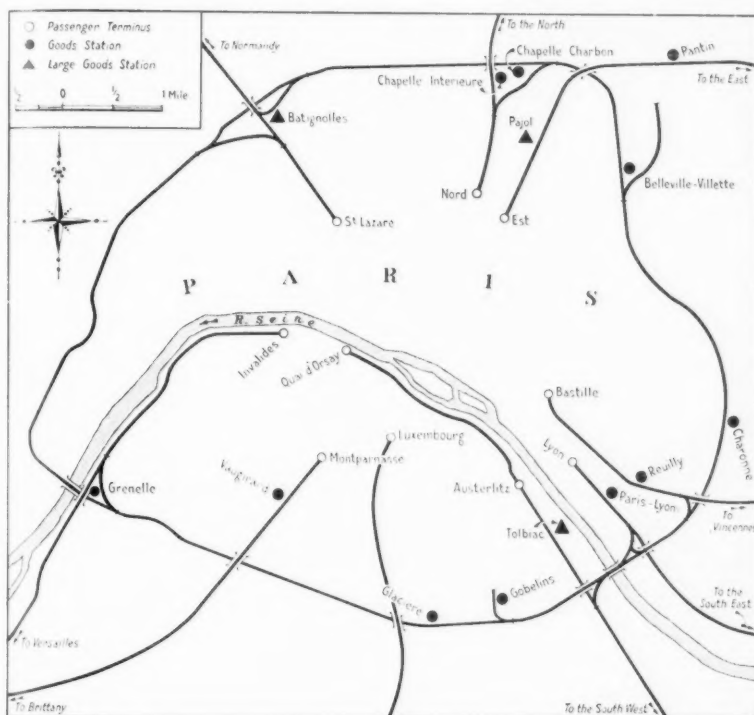
Although the island station involves certain additional expenditure on equipment and handling, it makes it possible for traffic to be loaded in bulk with a minimum of sorting at the main stations, effecting a reduction in handling costs at these stations. This (together with the saving in cartage costs resulting from more economical use of the cartage units working between the main and island stations, and also of vans delivering parcels in the areas surrounding the island stations, where traffic originating in all regions is concentrated) much more than counterbalances the additional handling cost at the island sorting station.

It was therefore decided to divide the Paris suburbs within an average radius of 15 miles round Paris into 18 zones, each zone being called by the name of its island station. The latter has been chosen with regard to its geographical situation and the density of the traffic with which it must deal. The zone represents an area of from 2 to 6 miles radius around the island station. To each island station are attached other stations in the zone known as "satellite stations," which do not normally deal with inwards traffic.

The suburban zones have been drawn, with the aid of recent statistics, so that the island stations receive sufficient traffic to enable them to be reasonably served by departures from the three centre stations. In fact, if traffic were insufficiently dense, it would be necessary to provide for one lorry to serve several island stations at the same time, or to collect from more than one main station parcels intended for the same island station. This procedure would present certain difficulties arising particularly from the fact that in the main stations the cartage trailers are loaded without sorting packages.*

The parcels collected in the main station are conveyed in heavy vehicles to the island station. These vehicles, consisting of diesel oil tractors (their number will eventually be some 200) of 65-80 h.p., with semi-trailers with

* To facilitate sorting, the labels of parcels affixed by departure stations bear the special figure "0" which refers to the road delivery in greater Paris. The distinction between parcels intended for each station is then assured by a number which follows the indication "0 PARIS." For example: Vincennes Fontenay is 0 PARIS 12; Versailles is 0 PARIS 37; St. Denis is 0 PARIS 23; and Ivry is 0 PARIS 42. The tens figure is that of the destination Region (East 1, North 2, West 3, South West 4, South East 5).



Inner Paris, showing position of goods stations

few miles in the Paris area. To effect an improvement it was decided that the whole of the goods traffic working be comprehensively reviewed with the object of organising an efficient collection and delivery service, with due regard for keeping costs as low as possible. This research was conducted by the Société de Contrôle et d'Exploitation des Transports Auxiliaires (S.C.E.T.A.), the road transport subsidiary of the S.N.C.F., and by the Regions concerned; and it is the improvements which are being brought about on their recommendations which are the subject of this article.

It was decided that the parcels and "smalls" traffic originating in or consigned to the suburbs of Paris, will in future be concentrated in one of three large new goods stations, situated near the outskirts of the central area of Paris (shown on the map on this page): (a)

of the size of these main stations can be gathered from the fact that Tolbiac is being equipped to deal with 2,900 tons of parcels and goods shed traffic daily and Noisy-le-Sec with 2,100 tons daily. Pending completion of Noisy-le-Sec and Tolbiac in 1951, traffic is being concentrated on five existing goods stations, namely, Paris-Pajol (Eastern), Paris-la-Chapelle (Northern), Paris-Batignolles (Western), and Paris-Austerlitz (South Western Region).

Inwards Suburban Parcels Service

It was decided that direct delivery from the three main stations was not practicable, as it would have caused traffic to be sorted at these stations into as many lots as there are suburban delivery areas, an impossible task for the main stations; and as the cartage units would have had to cover very long distances, would have resulted in exces-

Scammell automatic coupling and having a loading capacity of 900 cu. ft. and 7 tons, are operated by S.C.E.T.A. Packages are then delivered to domicile by the cartage service organised from the island station in the zone concerned. This service is provided by 2½-ton lorries for small packages and 5-ton lorries for part-load traffic, because, in general, accountancy operations require separation of these two traffics.*

Outwards Suburban Parcels Service

In the reverse direction, consignments handed in at satellite stations, or collected from the customer's address, are brought by lorry to the island stations, unless the volume of traffic from the satellite stations or from the sender enables a complete lorry load to be made up for the main stations. All vehicles are worked to a rigid timetable; this table is checked by the cartage control centre of S.C.E.T.A. which only intervenes in cases of emergency or of sudden additional traffic requirements; the transfer services are under the supervision of cartage superintendents in the main stations, the suburban delivery services under that of the island station superintendents.

Henceforth, parcels transferred in the main stations to S.C.E.T.A. at the beginning of the day's work can be delivered to domicile the same day. For this purpose two road services are provided from the main stations early in the morning, one leaving the station about 5.30 a.m., and the other about 10.30 a.m.; these trips connect with the twice-daily delivery services from the island stations, one commencing at 8.30 a.m., and the other at 1.30 p.m. Consequently, the same delivery service is provided for the suburbs as for Paris. In the same way, collection of parcels in all suburban stations (which are, in point of fact, town offices) is performed about 11 a.m. and 2 p.m. by the returning transfer services, and again between 6 p.m. and 7 p.m. All parcels are, therefore, in the main stations before departure of evening trains.

The organisation referred to above has been carried out in the following stages in order to allow for the handicap of the construction of the main stations:—

May, 1946,	opening of 1 zone (Moulineux)
October, 1946	3 .. (Versailles, Arcueil, Montrouge)
May, 1947,	5 .. (Vincennes, Argenteuil, Becon, La Garenne, Rueil, Suresnes)
March, 1949,	2 .. (Gennevilliers, St. Denis)
April, 1949,	1 .. (Ivry)
August, 1949,	4 .. (St. Ouen, Aubervilliers, Choisy, Juvisy)
October, 1950,	1 .. (Pantin)

This gives a total of 18 zones involving more than 100 satellite stations. The overall cost of operating the delivery service in the districts served by island stations (transfer *plus* delivery from the island station) is at the present time only

* Small packages not exceeding 50 kg. in weight are only forwarded carriage paid. In part-load traffic packages varying in weight from 60 to 5,000 kg. may be forwarded either "paid" or "to pay"

slightly more than that of the delivery service in Paris itself. In making this comparison attention should nevertheless be drawn to the following: (a) the suburban area is much more extensive than Paris; (b) the new organisation has enabled the French National Railways

the South Eastern and Mediterranean Regions. Consequently five separate delivery services have to cover the same area in Paris simultaneously.*

The organisation in future will enable important economies to be effected, thanks to the concentration of the traffic



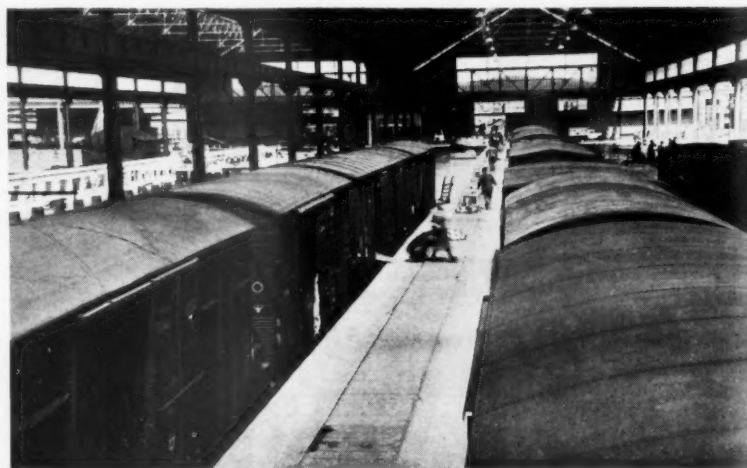
Concrete shed at Noisy-le-Sec which will handle 2,100 tons daily (500 inwards, 700 outwards, and 900 transshipment)

to effect economies in both staff and machines, ton-miles conveyed, wagon-days, and so on; and (c) the distribution to the island stations from five instead of three main stations involves temporarily higher transfer costs.

In the previous organisation, five large

in only three large stations: Paris-Pajol for Eastern and Northern Regions traffic; Paris-Batignolles for Western Region traffic; Paris-Tolbiac for South Western, South Eastern and Mediterranean Regions traffic.

The S.C.E.T.A. is engaged in planning



Steel shed at Paris Tolbiac railhead station designed to deal with 2,900 tons of parcels and part-load traffic daily

railhead stations in Paris were open for inwards parcels and part load consignments requiring delivery to domicile (see map on page 397): Paris-Pajol for traffic from the Eastern, Paris-La Chapelle for traffic from the Northern, Paris-Batignolles for traffic from the Western, Paris-Tolbiac for traffic from the South Western, and Paris-Lyon for traffic from

a delivery scheme in the city of Paris based on the same principle as that already in operation in the suburbs.

(Continued on page 400)

* Including the four neighbouring localities of Clichy, Le Vallois, Neuilly, and La Plaine-St. Denis, which are attached to it for cartage purposes. As seen from the maps, the distinction between Regions is much clearer than in London, where goods stations are more numerous and where the London Midland and Eastern Regions overlap

Norwegian Rail-Spreading and Lifting Equipment

A series of detachable rollers, partly arranged as a vertical S-curved ramp, fitted to a flat-wagon train for rapid rail spreading and lifting

FOR long lengths of relaying in short periods of line-occupation, a special type of equipment has been designed and used in Norway. It can be fitted to either standard- or metre-gauge flat wagons, to which it is bolted; after use, the equipment can be unbolted and removed, leaving the wagons in their original condition ready for ordinary duties. The equipment is used not only for spreading the new rails before relaying, but also for lifting and loading the old rails from the track.

A typical standard-gauge train to which the equipment has been fitted consists of an engine followed by a safety wagon, 21 flat wagons, a brake wagon, and a control wagon. The brake wagon was a bogie vehicle, but all the remainder were four-wheelers, 18 of them working in pairs, to carry nine loads of rails.

For spreading the rails along both sides of a track preparatory to relaying, 38 59-ft. rails were loaded on each pair of wagons, the nine pairs thus carrying 342 rails with an aggregate length of just over 20,000 ft., or sufficient for nearly two miles of relaying. The other wagons carried rail fittings, bearing plates, dog spikes, cut rail lengths, and tools.

Each of the 18 wagons loaded with rails was fitted with a central steel bolster, and also two pairs of girder brackets, spaced about 13 ft. apart and protruding approximately 1 ft. from the two sides of the wagon. Each bracket was fitted with a roller, the top of which was flush with that of the bolster, and also an end stop, to prevent rails resting on the rollers from sliding off, especially where superelevation was pronounced. The last four vehicles, including the brake and control wagons, were also fitted with roller brackets, but instead of these being at bolster level, they were arranged in the form of a downward ramp with 656-ft. rad. vertical S-curves, and a short length of straight between them. The last and lowest rollers were thus little above track rail-level, and their brackets were fitted with additional vertically-pivoted side-control rollers, to ensure that the rails were delivered in correct position on the sleeper-ends.

The procedure was as follows. On each pair of wagons, one of the 38 rails was slewed to the right and other to the left until they rested on the bracket rollers. The rail on the right was then coupled by means of a 1-in. round-bar hook to its neighbours on the right-hand side of the two adjacent pairs of wagons, and the one on the left was similarly treated. There was then a nine-rail chain of rails, loosely coupled together, along each side of the 18 wagons, and measuring 531 ft. in over-all length.

These rail-chains were next rolled away from the engine, the leading ends rolling down the S-ramp, until they were brought to rest exactly opposite the rail-

joint in the track from which relaying was to start. There they were temporarily anchored, and the train proceeded to move away from that joint, paying out the two rail-chains as it went, until their ends towards the engine were in position for the second pair of rail-chains—now slewed on to the rollers—to be linked up with them. The process was repeated until the whole train-load of rails was spread along the track. Fish-plates and other track fittings and parts were thrown off the other wagons as required.

In this manner rails and other steel-work sufficient for 1.91 miles of track were placed in position for relaying in just over an hour, and it is expected that, when the staff has gained more experience, this time will be substantially reduced. On the metre-gauge system it was found that when only one rail-chain was unloaded at a time, 1 m. of rail could be spread per second, or 197 ft. a minute. When two rails are being dealt

with simultaneously, progress is expected to be double these figures.

When rail spreading is in progress in tunnels and cuttings on sharp curves, it is not possible for the foreman or permanent way inspector on the control wagon to communicate with the driver by hand signal. Experiments were therefore made with wireless telephone to establish communication the length of the train. This failed, and was replaced by ordinary telephone equipment, which worked quite satisfactorily.

Rail Lifting and Loading

As a preliminary to lifting and loading the old rails released from relaying, these rails—which happened to vary in length from 23 ft. to 59 ft.—were divided into rail-chains appropriate to the length of the train, as they lay beside the new rails in the track. In the case of the 24-vehicle train referred to above, the angle-fishplates on every 17th pair of rails were replaced by flat plates loosely con-



Train loaded with rails on its way to the rail-spreading work site



Rails slewed from the centre of the wagons on to the rollers at each side, being moved longitudinally to connect with those on adjacent wagons



The brake and control wagons with new rail-chains being paid out over the ramped rollers. On the brake wagons the foreman in headphones is conversing with the driver

nected by two fishbolts screwed up only thumb-tight.

The train, now made up in the reverse order with the control wagon next to the engine, was then run to site, and the ends of the old rail-chains were inserted in the control rollers. The train

next moved forward 558 ft. plus the length of the S-ramp, causing the two 558-ft. rail-chains to run up the ramp and on to the wagons. The loosely-bolted fishplates were then removed at the end of the rail-chain, which was slewed intact from the rollers to the

middle of the wagons. The train thereupon moved on another 558 ft., and the process was repeated until the train was fully loaded. The rail-chains were subsequently unloaded at the depot, where their joints were unbolted to release the multi-length rails for stock.

French Railways Parcels Service in Paris and Suburbs

(Concluded from page 398)

Each of the three Paris stations delivery areas (Pajol, Batignolles, and Tolbiac) will cover about one-third of Paris. A parcel coming, for example, from the south-east of France through Paris Tolbiac for delivery in the west of Paris will be conveyed from Tolbiac to Batignolles by road transfer service and will be delivered from Batignolles. Any one street in Paris will thus be covered by only one delivery round; the cost of the transfer service will be compensated by a higher number of parcels delivered per stock-day and a smaller mileage per day-vehicle.

Outwards City Parcels Traffic

As regards outwards traffic, the stations function as town offices, with transfer by lorry to the departure station concerned when the destination of the parcels is not situated in their own Region. This transfer is performed free of charge, but involves payment of a small transfer charge in the case of part-load traffic brought in after 12 a.m.

These problems, which are much the same in the English and French capitals, demonstrate the constant desire for perfection and modernisation of the railway which, in spite of its 100 years of existence, endeavours always to offer an improved service at the lowest possible price.

WESTERN REGION DEBATING SOCIETY'S WINTER PROGRAMME.—The new session of British Railways (Western Region) London Lecture and Debating Society will include addresses on the Australian Railways, passenger and parcels traffic, civil aviation, railway bridges, freight station working, and the design and construction of rolling stock, and one meeting will be devoted to a railway quiz. The subject for the prize essay competition for 1950-51 will be "By what means can the net revenue of the British Railways be improved in present circumstances?" and entries must be in by January 6, 1951. Membership of the Society, which was formed in 1904 with the object of discussing the general working of railways and other means of transport, and has a reference and lending library, is open to all grades of staff on the Western Region in London, and to clerical, technical and supervisory grades in the country. Application for member-

ship, for which the annual subscription is 1s., may be made to representatives of the Society in headquarters and district offices throughout the Region, or to the Honorary Secretary, Mr. D. Price, Office of the Chief Regional Officer, Paddington Station.

TRINITY ROAD STATION RENAMED.—As from October 1, Trinity Road (Tooting Bec) Station, on the Northern Line of London Transport, has been renamed Tooting Bec.

RECONSTRUCTION OF LEA BRIDGE STATION BOOKING HALL.—As a result of a fire, which severely damaged the booking hall and other station buildings at Lea Bridge in 1944, reconstruction was started by the Eastern Region of British Railways in 1949 and has recently been completed. The original design for the exterior was retained to a great extent by utilising as much of the original structure as possible and the interior was completely redesigned to incorporate modern improvements in booking office design. The work was carried out under the direction of the Civil Engineer, Eastern Region, by Mr. H. H. Powell, Architect, Eastern Region, and the General Contractors were Haymills (Contractors) Limited. The internal fittings to the booking office were provided by A. Davies & Company, and reconstruction of the stonework was carried out by Szerelmey Limited.

Coaching Stock Windows

Balanced design for rail and road vehicles with a locking device in the window channels

A BALANCED window has been evolved in which the glazing can be removed together with the balance mechanism. The window, known as the Mark IV Sturdy full-drop railcar window, has been designed by the Rawlings Manufacturing Co. Ltd., Bedford

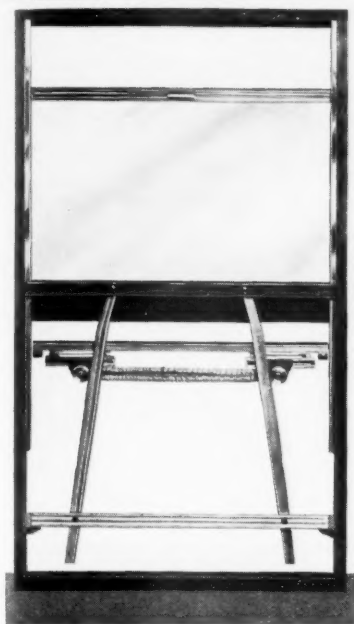
ing stock where the narrow opening requires a mechanism providing a deep drop without impinging on the side pillars of the door.

The main features of the earlier Sturdy window have been preserved, i.e., the glass can be removed completely with the glazed on top and bottom metal channels—also with balance mechanism attached—all forming one complete unit, merely by removing the side and waist rail finishers, after which the whole of the above described unit can be pulled upwards and inwards and lifted out of the window opening.

A spring loaded locking device incorporated in the top channel of the window acts as a safety lock in the closed position; the window is retained in intermediate positions by means of indentations in the edges of the run bars arranged at suitable intervals to suit the service required.

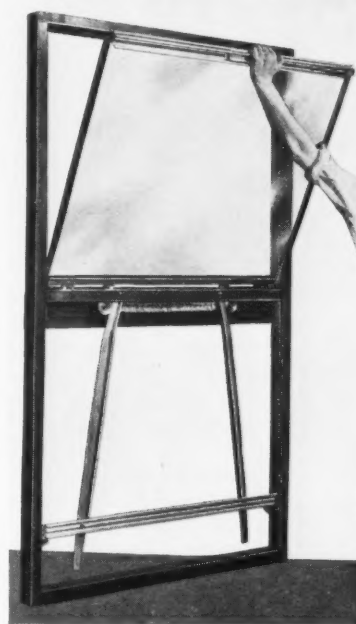
The weight of the window, which can be supported and balanced by this mechanism, may be varied over a very wide range, corresponding balancing springs being fitted to suit the work they have to do; the springs are encased in grease-filled leather gaiters so that no maintenance is required. The run bar unit comprises two or three horizontal bars and two inclined semi-vertical bars set in a position determined by the weight of the glass. The top horizontal bar provides for securing the framing to the side pillars, and the lower bar is a strengthening member with an additional feature to enable the member to drop into a self-aligning position in a combined stop and locating bracket at the bottom of the well. Where the lower run bar unit and the lower half side run channels are installed in a complete zinc-lined water-drainage pocket, it is not necessary to provide access to the unit by means of a trap door, as it is possible to withdraw

upwards both bottom run channels from the window to enable the run bar unit to be withdrawn with ease. The run bars themselves are manufactured from high-grade aluminium alloy anodically treated to offer maximum resistance to corrosion, while the remainder of the



A view of glazing held in position by the locking mechanism

Hill, Balham, London, S.W.12, and is claimed to be particularly adaptable to large windows usually associated with observation cars or Pullman cars and road transport vehicles. The design is also applicable to door windows of roll-



Method of removal of glazing for replacement purposes

parts in the water pocket are of brass or cast aluminium.

A description of these windows which was given in our August 25 issue contained a number of inaccuracies as to constructional details.

SWANSEA-BRYNAMMAN EAST SERVICE WITHDRAWN.—Passenger services were withdrawn on September 23 from the Western Region (former Midland) branch from Swansea St. Thomas to Brynamman East. The intermediate stations affected are: Upper Bank; Morriston East; Clydach-on-Tawe South; Glais; Pontardawe; Ystalyfera; Cwmtwrch Well Halt; Gwys; and Cwmillynfell.

FRENCH TRAIN ACCIDENT.—Six people were killed and a number injured when a Nancy-Paris express train was derailed near Barle-Duc, 45 miles west of Nancy, on September 25. The train was running on a side track when the accident occurred as the main line was under repair and signals indicated that trains were not to exceed 20 m.p.h. The engine was derailed and fell on its side, and the first two coaches rolled down the embankment, which at this

point is over 25 ft. high. There was no interruption of traffic as the down track was not affected.

VENEZUELAN RAILWAYS PURCHASED.—Contracts have been signed for the sale to the Venezuelan Government of the La Guaira & Caracas Railway for the gross sum of £1,011,000 and of the Bolivar Railway for the gross sum of £827,000. These figures compare with the minimum net sums to be available for disposal for the two railways of £760,000 and £615,000 respectively which were agreed on last January when the directors sought permission to conclude the agreements. The negotiations have continued intermittently for four years. The full extent of liabilities and expenses cannot be ascertained at present though the directors "think it improbable that the disposable balances available to each company after the full

sale prices have been received will exceed the figures on which the stockholders' authority to effect the sale was based." The payments are to be made half in cash and half in Venezuelan Government bills of nine months duration, but stockholders are informed that it may not be practicable to make any distribution until after receipt in full of the sale prices payable.

TRAVELLING PLASTICS EXHIBITION.—The travelling exhibition of plastics products organised by Bakelite Limited, which has already been to London and a number of European capitals, will visit Scotland in November, when the applications of plastics in a wide range of industries will be demonstrated. The exhibition will be held at the Engineering Centre, 351, Sauchiehall Street, Glasgow, from November 7 to 10, and the Bakelite Limited film "The Nature of Plastics" will be shown.

Reconstruction of London Transport Rolling Stock

Extensive programme of modifications to enable older types of stock to operate with cars of the latest design



Experimental streamline tube stock cars of 1936

THE reconstruction of railway cars has been carried out by London Transport at Acton Works for many years. This work is necessary because considerable advances in the design and equipment of railway rolling stock take place during the life of the average car, which is some thirty years. Rolling stock is therefore often modernised after about fifteen years' service to bring it into line with later stock, with which it can then be operated.

At first, two roads in an existing shop were used for this work, but as its volume increased it was moved to a new shop, originally built for bogie storage. Here the principal reconstruction works carried out were the fitting of automatic B.T.H. control equipment to early District Line stock, the equipping of the 1920 District and 1923-27 tube stock with electro-pneumatic brakes, as well as the construction of a mobile welding wagon and a rail grinding car, and the alterations required for the first experimental metadyne-equipped train.

District Line Stock

The 1935-40 new works programme provided for extensions to Acton Works as well as for considerable reconstruction of rolling stock. The work was accordingly moved to a large new shop and consisted of fitting air-doors to some types of District Line stock, equipping with electro-pneumatic brakes certain District Line cars not already fitted, adding retardation control equipment to the electro-pneumatic brakes already fitted to various stock, and installing "passenger open" control to the doors of some cars. In addition, eighteen sleet locomotives and one diesel-electric locomotive were built from obsolete Central London Railway motor cars.

Although incomplete, this work had to

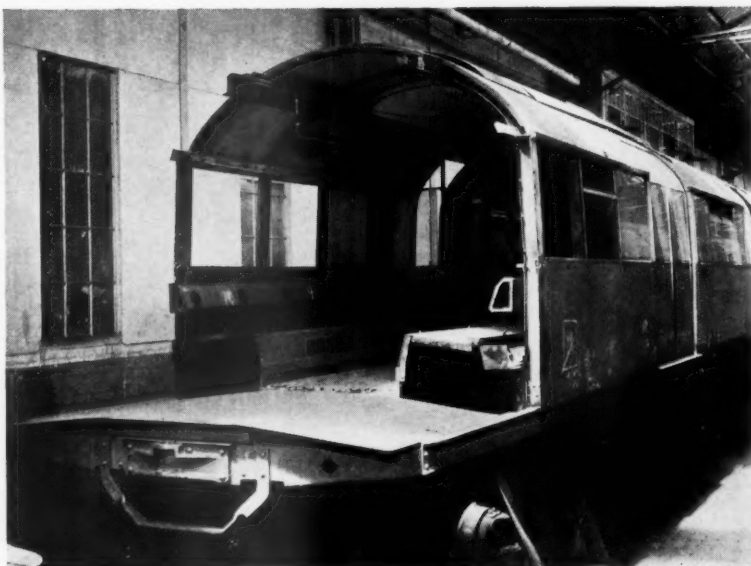
be abandoned at the outbreak of war and the shop was turned over to the overhaul of armoured fighting vehicles. At the end of the war, the completion of the works under the 1935-40 programme and the rehabilitation of cars stored during the war became the main task. When this was finished, the shop was re-designed as a car body shop and reconstruction work was transferred to a smaller shop, vacated by the general overhaul section.

The work immediately undertaken in the reduced space now available was the conversion to air operation of some

of the remaining hand-worked door District Line cars to enable them eventually to operate in "Q" stock trains. The work was divided into two stages as most of the cars were to continue running with hand-operated doors until the 1910-13 stock motor cars with which they operated were withdrawn for scrapping. The first stage consisted of making as many alterations as possible whilst allowing the cars still to operate with the old stock. A means was found, for example, of fitting rubber edging to the doors and still retaining the handle and door lock. All the additional control and auxiliary receptacle boxes were fitted, equipped with dummy plugs to prevent misuse. This stage has now been completed on all the 77 cars to be converted.

The second stage, now in progress, comprises the fitting of the remaining air door equipment and other services, and several cars have already been dealt with. To avoid errors in re-forming trains, completed cars have had the prefix "0" added to their serial numbers. The amount of work left for stage two is reduced to a minimum so that it can be done in the District Line Depot at Ealing Common and avoid a second special visit to Acton Works.

Another large task at present in hand is the conversion to standard form of the experimental tube cars purchased in 1936. Until then control equipment on tube stock had occupied potential seating space, and it was thought desirable that the new cars to be purchased under the 1935-40 new works programme should have the control equipment



Cab end of motor car of streamline tube stock cut away for rebuilding as a trailer car



Cars of fourth non-streamline experimental train

placed underneath. Fundamental changes in control gear design were therefore necessary and orders were placed for four six-car experimental trains incorporating various new designs of control gear. Three of the trains, each of two-car units, were fitted with streamline ends and the driver was moved from the left to the centre of the cab and provided with an armchair and joystick type control levers.

The design of the 1938 tube stock subsequently ordered was the outcome of these experiments. The driver was, however, returned to his conventional position, the fourth and last of these

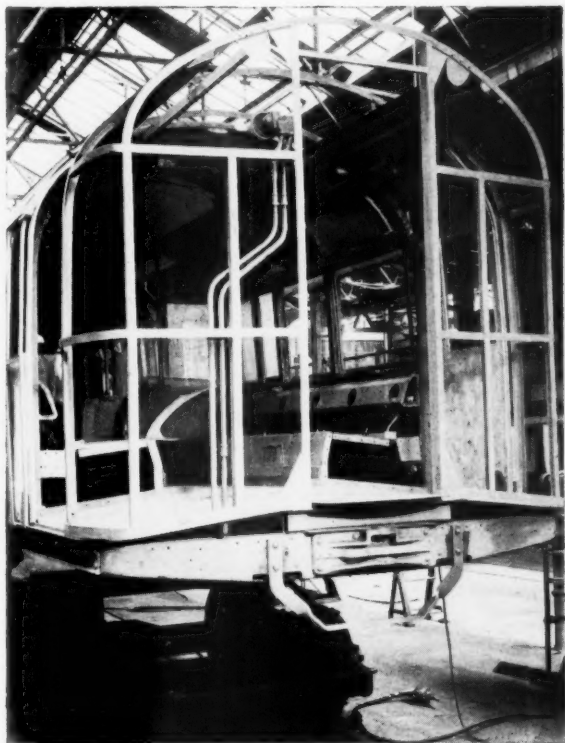
experimental trains actually being constructed in this form.

The continued operation of these 24 experimental cars in their non-standard form was undesirable and it was decided to convert them to standard. The six cars of the fourth train were dealt with first. The experimental control gear was removed and standard P.C.M. type fitted so that the cars could operate as two-car shuttle trains on the Central Line beyond Loughton. This work entailed the complete recabing of the underframe, the manufacture of special equipment cases and the removal of the door control position from the

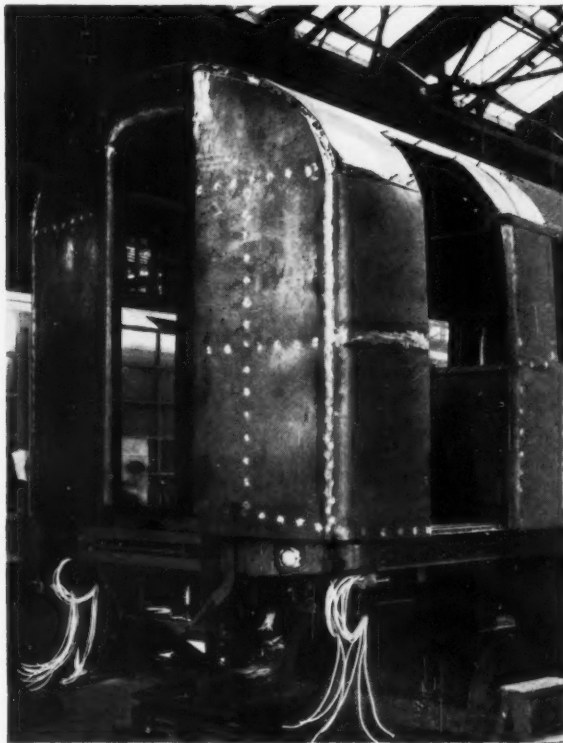
driver's cab to the end gangway in the passenger area. These six converted cars have retained their original numbers, 10009-11 and 11009-11.

Work has now begun on the eighteen streamline cars in this batch, the streamline ends being cut away down to the car solebar and the body built up to provide an end sliding door. The electrical traction equipment is being removed and the cars completed as trailers. When finished they will in most details resemble 1938 type trailers and will be renumbered in that series.

On completion of the above work a programme of renovation of 1920 "all



New end-framing erected, converting the streamline cab end to normal trailer car



Streamline tube stock during reconstruction in 1936 at Acton Works

steel" District stock will begin. All electrical equipment is to be thoroughly overhauled and modernised to bring it into line with up-to-date practice and the body work renovated so that the cars will return to service with a new lease of life.

Feltham stock of 1931 converted to air-operated door stock



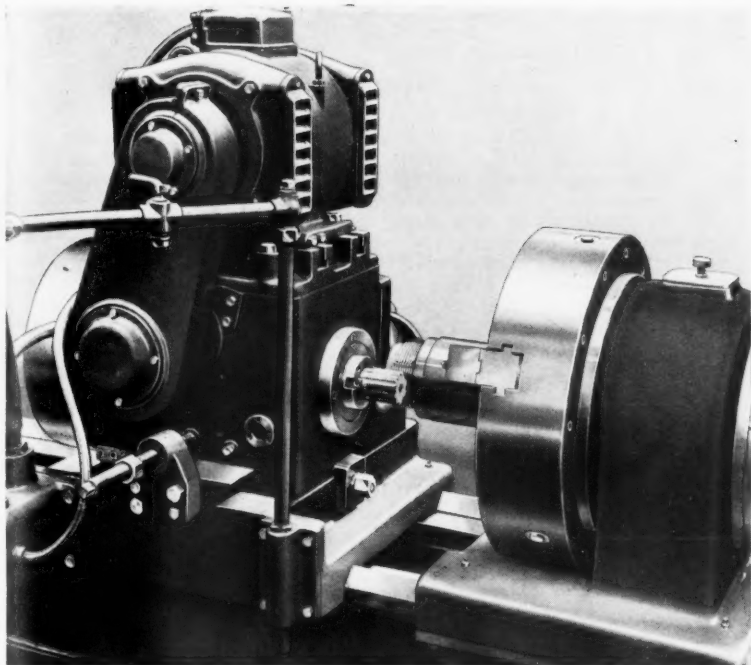
British-Built Electric Locomotive in Brazil



3,000-h.p. 3,000-volt locomotive, one of a batch of 15 designed by The English Electric Co. Ltd., on test near Campo Limpo on the Santos-Jundiahy Railway of Brazil. The mechanical parts of these locomotives, which were described in our issue of October 28 and November 4, 1949, were manufactured by the Vulcan Foundry Limited

Thread Milling Locomotive Components

Machine which facilitates the cutting of screw threads on shouldered axles



Close-up of the milling head and completed axle end

AS a result of experiments in screw-thread milling during the war a machine has been designed by Craven Brothers (Manchester) Limited, Vauxhall Works, Stockport, for thread milling the short threads on the ends of locomotive axles, crank pins, and eccentric cranks. Supported on two welded-steel stands of box girder design, the machine bed has vee-type slideways for carrying

an independent milling head, a rotary sleeve-type work stay and a swivelling lifting jack, all of which are adjusted by hand motion.

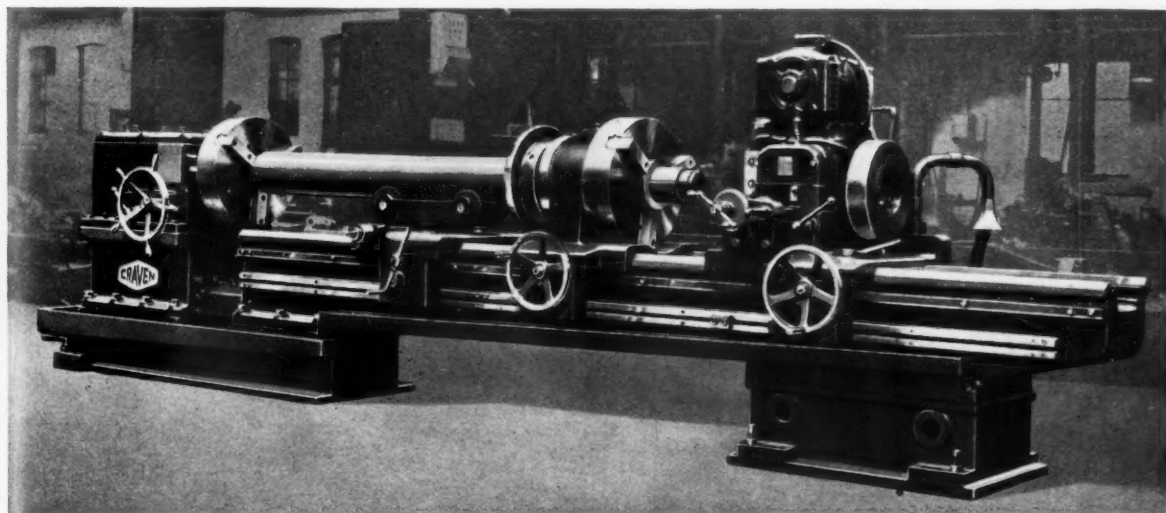
The left-hand bed standard is extended to carry the work revolving headstock, and is arranged to form a short gap bed for the accommodation of eccentric cranks or other components having similar features. The spindle of

the work headstock has a four-jaw concentric chuck to grip the ends of axles and is mounted in bronze bearings. Drive is by a 3-h.p. constant-speed motor, through double roller chain and wormgear transmission, variation in work speed ranging from 0.2 to 0.7 r.p.m. being obtained by accessible pick-off gears.

Hand rotation of the spindle is also included, engagement of the power drive being obtained by lever-operated drop-worm mechanism. A short length of master lead-screw, forming the end of the spindle, is in engagement with a revolving nut located in the headstock. Gearing connection with the spindle, through a back gear shaft, enables the nut to impart the required axial movement to the spindle, according to the "lead" of the thread to be cut; variation in the "lead" can be made by a change of pick-off gears.

The work stay has a hollow spindle, bored 9 in. dia. and mounted in plain bearings, and which is fitted at the front end with a concentric four-jaw chuck for gripping the axle end adjacent to the milling head. At its rear end the stay spindle carries a flange adaptor, which can be bolted directly to the headstock chuck when dealing with crankpins, in which case the swivelling jack would be removed.

Mounted on a broad saddle base, the milling head has transverse hand adjustment on a short cross-slide for the application of the thread milling cutter to the work. The milling spindle revolves on ball and roller journals, and is bored and keywayed to receive the shanks of snout-type cutters, securely held in position by a draw bolt. Cutter speeds can be varied by pick-off gears and range from 90 to 140 r.p.m., the drive being



Craven locomotive axle thread milling machine

by an independent 3-h.p. motor through double roller chain and worm reduction gearing.

Method of Operation

With the milling head and stay at the extreme right-hand of the bed, the work is lowered on to the lifting jack and moved longitudinally into the headstock driving chuck. The work stay having next been brought back into position to support the axle end, both chucks are rotated to a starting point as indicated by "zero" marks scribed on the chuck rim. The chuck jaws are tightened and the lifting jack released.

The milling head is brought into its working position according to the setting of an adjustable bed stop—it being realised that the work will traverse axially for a distance equal to approximately three threads "lead" before completion of the thread cutting—and the cutter is adjusted transversely until

it just contacts the outside diameter of the work. In forming coarse pitch screw threads which require a rough and finishing cut, the milling cutter is fed to sufficient depth suitable for an initial cut, and is maintained at this depth while the work makes one complete revolution.

Swing over of a two-position gauge block allows the cutter to be fed in to the full thread depth for the finishing cut, a further full revolution of the work is allowed before the cutter is withdrawn. Graduations on the chuck indicate the start and completion of each cycle and ensure sufficient overlap to compensate for the arc of cutter contact and also for the application of rough and finishing cuts. On completion of the thread milling operation at one end of the axle, the swivelling lifting jack is again brought into use, and, after the withdrawal of the milling head and stay, the axle is swung round on the

jack to bring the other end into machining position, when the cycle of operations is repeated.

The cycle of operations described is applicable to the cutting of coarse threads requiring a roughing and finishing cut. The machining of finer threads requires a single cut, necessitating only one complete revolution of the work.

The length of the machine bed, from the inside of the gap, is 13 ft. 7 in., the depth from the centre line to the bed is 12 in. The machine incorporates cutting lubricant troughs and a fractional h.p. motor supply pump; push-button control is also provided.

CHANGES IN EXPORT LICENSING CONTROL

—The Board of Trade have announced that, as from October 31, 1950, export licences are required for railway tank and well wagons and low-loading road vehicles for destinations other than the Commonwealth and the United States.

United States Railway Radio System

(See editorial note on page 379)



A typical radio-equipped wayside station on the Erie Railroad communicating with the crew of a passing freight train

RAILWAY NEWS SECTION

PERSONAL

Mr. F. H. Sedgwick, Accountant, British Railways, Eastern and North Eastern Regions, has retired.

Mr. G. W. O. Moore, Deputy Chief Accounts Officer, South Indian Railway, has been appointed Financial Adviser & Chief Accounts Officer.

Mr. Oliver S. Naylor, Assistant London Agent, Rhodesia Railways, who, as recorded in our September 8 issue, has been appointed London Agent, joined the service of the former Rhodesia Railways Limited in December, 1925, as head of the Stores Department; he was appointed an

tion. Mr. C. Nevile is a member of the Agricultural Improvement Council and Chairman of the Economics Committee of the National Farmers' Union, of which he is a Past-President. The vacancies have not yet been filled.

Lt.-Colonel J. N. Peck, O.B.E., M.C., B.A. (Hon., Cantab.), A.M.I.C.E., M.Inst.T., who, as recorded in our September 22 issue, has retired from the position of District Engineer, St. Pancras, London Midland Region, was born at Southport in 1887 and was educated at Sedbergh and Caius College, Cambridge, where he obtained a degree in Mechanical Science—Tripos. He joined the Lancashire & Yorkshire Railway as a pupil of Mr. D. C.

struction of bridges over the Rhine at Cologne, Dusseldorf and Duisburg, and in 1946 he returned to the L.M.S.R. as District Engineer, London.

Mr. J. R. Dallmeyer, B.Sc., M.I.C.E., District Engineer, Hull, British Railways, North Eastern Region, has been appointed District Engineer, Kings Cross, Eastern Region.

Mr. J. Kirkby Thomas, Deputy Principal, Kirkby Training College, Liverpool, who, as recorded in our September 22 issue, has been appointed Principal, Railway Executive Staff Training Schools, Darlington, was born at Liverpool and educated at Holt High School, Liverpool, and Liverpool



Mr. Oliver S. Naylor

Appointed London Agent, Rhodesia Railways



Lt.-Colonel J. N. Peck

District Engineer, St. Pancras, London Midland Region, who has retired



Mr. J. Kirkby Thomas

Appointed Principal, Railway Executive Staff Training Schools, Darlington

Assistant Secretary in 1947. After the whole of the share capital of the Rhodesia Railways Limited had been bought by the Southern Rhodesia Government as from April 1, 1947, Mr. Naylor became Assistant London Agent, Rhodesia Railways.

Mr. Charles P. Madely, Plant Manager, Montreal Locomotive Works Limited, has been appointed Manager of industrial sales.

RAILWAY EXECUTIVE PART-TIME APPOINTMENTS

The terms of office of Sir Wilfrid Ayre and Mr. C. Nevile as part-time Members of the Railway Executive expired at the end of September. The appointments are temporary and it is the intention of the Minister of Transport to make changes from time to time, to widen the variety of experience which the appointment of these Members is designed to provide. Sir Wilfrid Ayre had previously intimated that, on account of his other commitments, he did not wish to be reappointed. Sir Wilfrid Ayre is Chairman & Managing Director of the Burntisland Shipbuilding Co. Ltd., on the boards of several other shipbuilding companies, and Past-President, Shipbuilding Employers' Federa-

Ratray, Chief Engineer, in 1912, and two years later, while Assistant Resident Engineer in charge of the rebuilding of Waterloo Road Station, Blackpool, he joined the King's (Liverpool) Regiment; he went overseas in 1915. He was awarded the M.C. and assumed command of a battalion in 1916. On his return to civil life in 1919 he had experience in Dock & Harbour work at Fleetwood, and was appointed Assistant District Engineer to the Low Moor District (afterwards Bradford District) in 1924. In 1929 he took charge of the organisation of the Bridge Repair Gangs for the Northern Division of the L.M.S.R., becoming Assistant to the Divisional Engineer, Mr. S. O. Cotton, in 1931. He was appointed District Engineer at Blackburn in 1933, and came to London in 1934 as District Engineer. As Engineer of the London District of the L.M.S.R. he was responsible for the maintenance and repair of all L.M.S.R. lines in London, except those leading from Euston, throughout the war, and he received the O.B.E. At the end of August, 1945, he joined the Control Commission in Germany as Civil Engineer in charge of the German Railways in the British Zone, under Sir Robert Marriott. While in charge of these railways he was responsible, among many other works, for the direction of the recon-

University, where he graduated with first class honours and was a prizeman and a research scholar. He was English master at Wallsend Grammar School from 1930 to 1946, when he became Senior Lecturer in English and Education at West Jesmond Training College, Newcastle-on-Tyne; in 1949 he was appointed Deputy Principal of Kirkby Training College, Liverpool. Mr. Kirkby Thomas was also a lecturer in Psychology and English in the Municipal College of Commerce, Newcastle-on-Tyne, both before and after the recent war. Mr. Thomas is the author of a number of educational books and has contributed articles on railway subjects to the technical Press.

Mr. Douglas Lorimer and Mr. John Vaughan, O.B.E., President and Director respectively of the Locomotive Manufacturers Association of Great Britain, will leave England on November 16 for India. They will visit Chittaranjan Locomotive Works to see the steaming of the first locomotive built with British technical aid. They will also visit Delhi to have discussions with the Member for Transport and Members of the Railway Board. At Bombay they will have conversations with the British Trade Commissioner and representatives of British interests in India.



Mr. C. Birch

Appointed District Operating Superintendent, Wakefield, North Eastern Region

Mr. C. Birch, Assistant to the Operating Superintendent, Edinburgh, Scottish Region, who, as recorded in our September 22 issue, has been appointed District Operating Superintendent, Wakefield, North Eastern Region, began his railway career with the L.N.E.R. in 1925, in the Office of the District Locomotive Superintendent, Sheffield. In 1931 he moved to the office of the District Superintendent, Manchester, and he obtained a traffic apprenticeship in 1932. Mr. Birch became Assistant Yardmaster, Stockton & New-

port, in 1936; Yardmaster, Blyth, in 1937; and subsequently occupied posts at Newcastle, Sunderland, and Tyne Dock, before being appointed Assistant to the District Superintendent, Newcastle, in 1941. In 1943 he became Head of the Passenger Train Section, Superintendent's Office, York, and the following year was Head of the Freight Train Section; in 1946 he became Traffic Control Officer, Central Traffic Office, Marylebone. Mr. Birch was appointed Assistant to the Operating Superintendent (Trains), Scottish Area, L.N.E.R., at Edinburgh, in 1947.

Mr. C. E. Whitworth, Assistant to the Chief Officer (Administration), Railway Executive, was Assistant General Secretary to the Fifteenth International Railway Congress, held in Rome from September 25 to October 4.

We regret to record the death of Mr. W. M. Hind, O.B.E., M.Inst.T., who was Director of the General Division of the British Transport Commission. He joined the former North Eastern Railway in 1909 and was later wounded while serving with H.M. Forces during the first World war. On his return to civil life he joined the staff of Sir Eric Geddes and assisted in the work preparatory to the Ministry of Transport Act, 1919; on the formation of the Ministry he was associated with the drafting of the Railways Act, 1921. He assisted with the financial merger of London transport incorporated in the Act of 1933. He was also concerned with the drafting of new or revised forms of accounts for the railway companies (1928), and the L.P.T.B. (1933). During the recent war he negotiated with the controlled undertakings the agreements containing the financial terms under which railway and canal undertakings were con-



The late Mr. W. M. Hind

Director of the General Division, British Transport Commission, 1948-50

trolled. Mr. Hind assisted in the formulation of the financial proposals contained in the Transport Act, 1947. Mr. Hind became Transport Accounts Officer at the Ministry of Transport in 1938, and Deputy-Director of Finance in 1946; he was appointed Director of Funds, Comptroller's Department, British Transport Commission, in 1948, and Director of General Division later that year. He was made an O.B.E. in 1942. The funeral will take place at Sutton Road Cemetery, Southend-on-Sea, on November 3 at 10 a.m.

Cocktail Party for Swiss Travel Agents



Group at the cocktail party for the 19 Swiss travel agents recently visiting England, which was given on October 9 by the Railway Executive and the Hotels Executive at Charing Cross Hotel, London. The joint hosts were Mr. R. H. Hacker, Chief Officer (Continental), Railway Executive (extreme left), and Mr. W. H. Johnson, Secretary, Hotels Executive (extreme right), who were supported by chief and executive officers of the Executives and other officers of British Railways. The guests included leading representatives of the British Travel & Holidays Association, which sponsored the visit

British Transport Commission Statistics (Period No. 8)

Summary of the principal statistics for the four-week period ending August 13

STAFF

	B.T.C. Head Office	British Railways	London Transport	British Road Services (Road Haulage)	Road Passenger (Provincial & Scottish)	Hotels & Catering	Ships & Marine	Inland Waterways	Docks, Harbours, Wharves	Railway Clearing House	Commer- cial Adver- tisement	Legal	Films	Total
Number ...	226	618,421	98,829	75,061	61,061	18,893	6,611	5,073	19,973	643	191	278	25	905,825
Inc. or dec.	—	-463	-69	+73	-178	+279	+5	+8	+14	+5	-1	—	+1	-326

BRITISH TRANSPORT COMMISSION TRAFFIC RECEIPTS

	Four weeks (Period No. 8)		Aggregate for 32 weeks	
	To August 13, 1950	To August 13, 1949	1950	1949
	£000	£000	£000	£000
British Railways—				
Passengers ...	13,008	13,864	67,680	72,294
Parcels, etc., by passenger train ...	2,497	2,323	18,255	17,687
Merchandise ...	5,922	5,148	50,915	49,043
Minerals ...	2,284	1,920	19,266	18,009
Coal & coke ...	5,193	4,167	45,382	41,473
Livestock ...	119	72	714	653
	29,023	27,494	202,212	199,159
British Railways— Delivery & other road services...	799	656	5,699	5,382
Ships and Vessels ...	1,527	1,552	6,514	6,411
London Transport—				
Railways ...	1,074	1,080	8,756	8,870
Buses & coaches ...	2,468	2,500	19,036	19,341
Trams & trolleybuses ...	801	830	6,524	6,734
	4,343	4,410	34,316	34,945
British Road Services— Freight charges, etc. ...	4,473	2,884	36,277	16,021
Road Passenger Transport ...	3,881	3,594	23,101	21,710
Docks, Harbours & Wharves ...	931	894	7,222	6,716
Inland Waterways ...	118	111	973	934
Hotels & Catering ...	1,284	1,151	8,784	8,078

LONDON TRANSPORT

	Passenger journeys	Inc. or dec. per cent. over 1949	Car miles	Inc. or dec. per cent. over 1949
Railways...	000		000	
Buses & coaches ...	46,023	-0.3	17,692	-0.5
Trams & trolleybuses ...	213,578	+0.8	24,642	+2.0
	87,193	-1.7	8,530	-0.7
Total ...	346,794	—	50,864	+0.7

INLAND WATERWAYS Tonnage of traffic and ton miles

	Tonnage	Inc. or dec. per cent. over 1949	Ton miles	Inc. or dec. per cent. over 1949
	000		000	
Coal, coke, patent fuel & peat ...	393	+14.9	5,485	+7.1
Liquids in bulk ...	133	+1.8	3,521	+22.7
General merchandise ...	282	-6.9	4,715	-5.5
Total ...	808	+6.7	13,721	+5.7

BRITISH RAILWAYS Rolling Stock Position

	Operating stock	Number under repair	Available operating stock	Serviceable stock in 1949
Locomotives ...	19,738	3,284	15,960	15,805
Coaching vehicles ...	57,383	4,613	52,770	50,942
Freight wagons...	1,099,349	108,790	990,559	1,001,526

BRITISH RAILWAYS

Passenger Journeys (Month of June, 1950)

Full fares	Monthly returns	Excursions, cheap day, etc.	Other descriptions	Workmen	Season tickets	Total	Inc. or dec. per cent. over 1949
4,226,000	15,443,000	19,016,000	4,701,000	18,609,000	17,807,000	79,802,000	-4.3

BRITISH RAILWAYS

Freight Tonnage Originating and Estimated Ton-Miles (Period No. 8)

	Minerals	Merchandise	Coal & coke	Livestock	Total	Inc. or dec. per cent. over 1949
Tons originating ...	000	000	000	000	000	
Ton-miles ...	4,110	3,415	10,490	63	18,078	+2.2
	335,951	444,638*	651,435	—	1,432,024	+3.1

* Includes livestock

BRITISH RAILWAYS (Period No. 8)

	Total steam coaching train-miles	Total electric coaching train-miles	Total freight train-miles	Freight train- miles per train engine-hour	Net ton-miles per total engine-hour	Locomotive coal consumption	
						Total tons	Lb. per engine-mile
	16,940,000	3,844,000	9,853,000	8.9	547	1,000,000	58.0
Inc. or dec. per cent. over 1949 ...	+0.8	+3.5	+2.1	—	+4.8	-1.2	-1.0

Opening of U.T.A. Workshops

Mechanical and servicing facilities in Belfast for road and rail vehicles

The official opening of new workshops at 4, Duncrue Street, Belfast, took place on October 4, when Major F. A. Pope, Chairman of the Ulster Transport Authority, presided. The ceremony was attended by the Deputy Lord Mayor of Belfast, Mr. W. V. McCleery, Minister of Commerce for Northern Ireland, and officials of his department, Mr. K. D. L. Sinclair, Chairman of the Belfast Harbour Commissioners, Major-General G. N. Russell, Chairman of the Road Haulage Executive in Great Britain, and members, officers, and engineering staff of Ulster Transport.

In his speech of welcome Major Pope referred to the events leading to the establishment of the new works, and said that when the U.T.A. was formed a little over two years ago, one of the most urgent problems was the efficient and economic maintenance of road and rail vehicles. At that time, workshops were located at a number of places throughout the country, where they had been transferred from Belfast in consequence of air raid damage. The Authority was quick to recognise that adequate and centralised workshops would have to be provided for the needs of both road and rail. Fortunately, a suitable site was available, and no time was lost in developing a scheme and proceeding with the work.

Clearance of the property and levelling of the site began two years ago. Six months later, 700 tons of steelwork had been placed in position, and after four more months the progress had been so good that the first sections of the staff, about 300, were able to move in. He also referred in general to the completed scheme, and said that, in addition to properly integrated road-rail engineering workshops, it also included many aspects of servicing. The new workshops were the first to be specially designed for combined road and rail engineering work.

In paying tribute to the staff, Major Pope said that the success of the scheme depended first and foremost on the staff,

and on their relations with the management, both direct and through the trade unions. The management realised that a grand team spirit had been displayed during the construction of the workshops, and not a little inconvenience suffered by the staff during the moving-in process, and he thanked them for their enthusiastic co-operation.

Major Pope then invited the Minister of Commerce to unveil a tablet commemorating the completion of the scheme, and after the ceremony, Mr. J. Courtney, Chief Engineer of Ulster Transport, asked Mr. McCleery to accept a souvenir of the occasion, and presented him with a specially bound copy of a descriptive booklet of the new workshops.

Later the guests were conducted over the premises in small parties. The inspection began with the parking and servicing facilities, which include fuelling installa-

tions and mechanical bus washers. In the parking area, which can accommodate 200 vehicles, there is a skid path used in connection with the instructional course given in the nearby driving school. The tuition given lays special emphasis on road safety and courtesy. All candidates for bus or lorry driving must pass the qualifying examination before they are engaged.

During the tour of the workshops the guests saw work in progress on road and rail vehicles, and also overhauls and running repairs to road vehicles, diesel locomotives, and railcars. The workshops are equipped with modern devices to ensure that all work dealt with receives expeditious treatment. There is accommodation in the main building for the stores required for every aspect of the work of the U.T.A., including the Hotels Department.

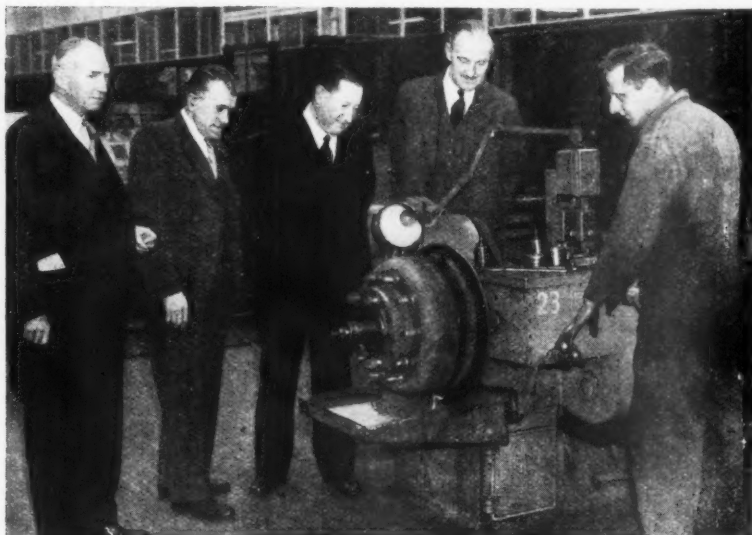
The close proximity of the new works to existing locomotive works and other railway activities allows complete control on the spot of an area of 15½ acres, which embraces all branches of engineering and servicing work necessary to keep road and rail vehicles at maximum efficiency.

London Midland Region Stations Closed

The following is a list of London Midland Region stations closed permanently since September, 1948:—

Station	Date closed	Type of traffic for which station is closed
Dukinfield & Ashton ...	Sept. 25, 1950 ...	Passenger & parcels
Audenshaw ...	Sept. 25, 1950 ...	Passenger & parcels
Kidsgrove Halt ...	Sept. 25, 1950 ...	Passenger
Furness Abbey ...	Sept. 25, 1950 ...	Passenger & parcels
Pitsford & Brampton ...	June 5, 1950 ...	Passenger
Dearham Bridge ...	June 5, 1950 ...	Passenger & parcels
Brayton ...	June 5, 1950 ...	Passenger & parcels
Leigate ...	June 5, 1950 ...	Passenger & parcels
Curthwaite ...	June 12, 1950 ...	Passenger
Floriston ...	July 17, 1950 ...	All
Rockcliffe ...	July 17, 1950 ...	All
St. Anns Road ...	Sept. 27, 1948 (temporarily closed August 8, 1942) ...	Passenger & parcels
Hornsey Road ...	Feb. 28, 1949 (temporarily closed May 3, 1943) ...	Passenger & parcels
Junction Road ...	Feb. 28, 1949 (temporarily closed May 3, 1943) ...	Passenger & parcels
Five Ways ...	Sept. 27, 1948 (temporarily closed Oct. 10, 1944) ...	Passenger & parcels
Shoreditch (L.M.R.) ...	Jan. 26, 1949 (temporarily closed Nov. 17, 1941) ...	Passenger & parcels
Haggerston ...	Jan. 26, 1949 (temporarily closed May 6, 1940) ...	Passenger & parcels
Hackney ...	Jan. 26, 1949 (temporarily closed May, 1944) ...	Passenger & parcels
Homerton ...	Jan. 26, 1949 (temporarily closed May, 1944) ...	Passenger & parcels
Victoria Park ...	Jan. 26, 1949 (temporarily closed Nov. 8, 1943) ...	Passenger & parcels
Old Ford ...	Jan. 26, 1949 (temporarily closed May, 1944) ...	Passenger & parcels
Bow ...	Jan. 26, 1949 (temporarily closed May, 1944) ...	Passenger
South Bromley ...	Jan. 26, 1949 (temporarily closed May, 1944) ...	Passenger & parcels
Poplar ...	Jan. 26, 1949 (temporarily closed May, 1944) ...	Passenger & parcels

* Retained as a passenger halt for workmen's trains

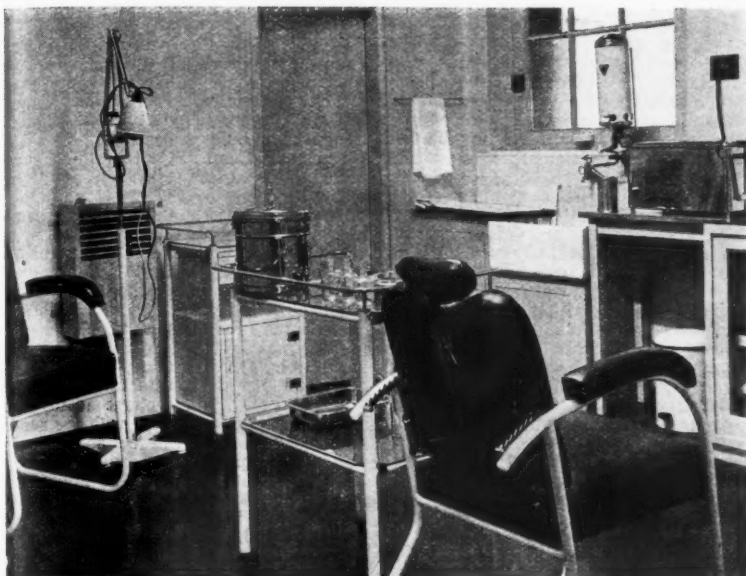


Major Pope, Mr. J. Courtney, Mr. W. V. McCleery, and Major-General G. N. Russell, during their tour of the U.T.A. workshops



Major Pope presiding at the opening ceremony on October 4

Eastern Region Medical Centre at Kings Cross



A new railway Medical Centre, designed for giving first aid to both staff and members of the travelling public who may be injured or taken ill, was opened on October 20 at Kings Cross Station, Eastern Region, British Railways, by Mr. W. P. Allen, Member of the Railway Executive. The primary aim of the centre is to give first-aid treatment and to avoid the delays which result from having to send patients to hospital for minor injuries.

The centre consists of a surgery, small waiting room, and a resuscitation room for cases requiring treatment for shock in awaiting transfer to hospital. A medical storeroom is also provided. A fully qualified nursing sister will be in attendance and a doctor is available when needed.

In declaring the centre open, Mr. W. P. Allen paid a tribute to Mr. C. K. Bird, Chief Regional Officer, Eastern Region, British Railways, for establishing the centre, and said that it was the Railway Executive's policy to see that similar centres are established elsewhere as expenditure permitted. The Kings Cross centre, which is situated in Cheney Road, within three minutes' walk of Kings Cross Station, was designed to the requirements of Dr. J. Sharp Grant, Regional Medical Officer, Eastern Region.

Among those present at the opening, and who appear in the photograph below, were (left to right) Mr. E. W. Rostern, Operating Superintendent, Eastern and North Eastern Regions; Dr. H. H. Cavenish Fuller, Chief Medical Officer, Railway

Executive; Messrs. W. P. Allen, Member of the Railway Executive; C. K. Bird, Chief Regional Officer, Eastern Region; Dr. J. Sharp Grant, Regional Medical Officer, Eastern Region; Messrs. H. Adams Clarke, Chief Officer, Staff & Establishment, Railway Executive; F. H. Colebrook, Stores Superintendent, Eastern and North Eastern Regions; H. H. Halliday, Regional Staff Officer, Eastern Region; H. C. Johnson, Divisional Operating Superintendent, (Western) Eastern Region; and A. Moss, Signal & Telecommunications Engineer, Eastern Region.

Staff & Labour Matters

Road Haulage Wage Agreement

The Road Haulage Executive and the Transport & General Workers' Union, the Scottish Horse & Motormen's Association, and the United Road Transport Workers' Association on October 26 signed an agreement covering pay and conditions for operating and other wages grades. This is the first national agreement covering 50,000 workers who have come into the employment of the Executive through acquisition of haulage undertakings under the Transport Act. The agreement provides for a revised schedule of wage rates, a 44-hour week, holidays with pay, and other conditions previously provided under the Road Haulage Wages Council.

Railway Pay

Separate meetings were held on September 15 between representatives of the Railway Executive and the A.S.L.E.F., N.U.R., and R.C.A., at which the unions were advised that after careful consideration of their applications for pay increases, the Railway Executive could not make any concessions. Each union stated that the Executive decision would be reported to its executive committee. The A.S.L.E.F. executive committee after considering the report of its representatives decided to give the Minister of Labour & National Service notice of a dispute with the Railway Executive, in accordance with Conditions of Employment & National Arbitration



Mr. W. P. Allen, Member of the Railway Executive, and Mr. C. K. Bird, Chief Regional Officer, Eastern Region (third and fourth from left), with other Railway Executive and Eastern Regional Officers at the opening of the Eastern Region Medical Centre at Kings Cross

Order, No. 1305, which prohibits strike action unless the Minister fails to take steps within 21 days to settle the dispute. The Minister, after discussion with the parties concerned, decided that means existed for settling the dispute by reference to the agreed negotiating machinery, and advised the parties to that effect. The A.S.L.E.F. thereupon submitted a request to the Railway Executive that their claim should be referred to the next stage in the negotiating machinery, the Railway Staff National Council. Similar requests were made by the N.U.R. and R.C.A., and a meeting of the Railway Staff National Council was arranged for November 7.

Engineers' Wages

Wage negotiations were resumed on October 2 between representatives of the Confederation of Shipbuilding & Engineering Unions and the Engineering Employers' Federation. Executive members of 37 unions met recently to receive a report from the wages negotiating committee and it was decided to reject the offer of the employers made in response to the claim for an all-round increase of £1 a week.

It is understood the offer of the employers included increases for the lower-paid engineers and provided for a new minimum rate of £5 a week with adjustments for pieceworkers and semi-skilled employees and the maintenance of differentials for craftsmen. Labourers would have received a new consolidated rate of £5 a week and skilled men £5 18s. Pieceworkers were to have their percentage above the skilled basic rate increased.

These negotiations followed discussions with the Minister of Labour after the Confederation had given notice to the Minister of a dispute in the industry arising from the wage claim for a £1 a week increase.

Manchester-Wath Electrification Progress

Erection of overhead equipment, cable laying, and substation construction well in hand

On the section of the Manchester-Sheffield-Wath electrification scheme from Wath Marshalling Yard (near Barnsley) to Dunford Bridge, which will be the first part to be completed, considerable progress has been made in the erection of steel masts and equipment for the overhead conductor system, the building of substations and the laying of traction and pilot cable.

The process of cable laying is an interesting feature. Work is usually carried out on Sundays when traffic passing over the lines is light with a consequent minimum of interruption to train services. Drums of cable weighing six to seven tons are conveyed by rail to Penistone, where by crane they are reloaded on to special cable wagons. A train, complete with equipment and workmen, sets out for the selected site, the cable is carefully paid out alongside the line, and during weekdays is lifted to concrete supports routed beside the track.

There is approximately 220 yd. of extra high tension 33 k.v. cable to each drum and the individual sections are jointed together.

At Strafford Crossing a rectifier loaded in a packing case will be off-loaded from a special rail vehicle into the substation building. This structure is one of four substations at present being built and equipped on the Wath-Dunford section of the line, namely, at Aldham Junction, Barnsley Junction (near Penistone), and Dunford. In addition, track section cabins are being built at Elsecarr Junction (Wath), West Silkstone Junction, and Bullhouse (between Penistone and Dunford). None of the substations or track sectioning cabins will nor-

mally be attended, but all main items of equipment at the substations and track sectioning cabins are to be under remote supervisory control from the Control Centre being built at Penistone.

Penistone Control Centre will be connected to the various substations and track-sectioning cabins by pilot wires in the form of cable supported on the same posts as the high voltage cable; this, with the supervisory control equipment to be installed at the Control Centre, the substations and the track-sectioning cabins, will enable control operations to be carried out with facility by a small staff, which will be kept advised as to the condition of the equipment under its control. The supervisory control equipment will provide for indication at Penistone of the load and voltage at any substation. Also incorporated with the supervisory system there will be an extensive system of telephones, connecting the Control Centre with all points of importance on the electrified system.

The work is being carried out by contractors employed by British Railways under the supervision of the Resident Electrical Engineer for the Railway Executive.

LIGHTALLOYS FINAL DIVIDEND.—The directors of Lightalloys Limited recommend a final dividend of 9d. a share as compared with 6d. a share last year. This makes 1s. a share instead of 9d. Profit for the year amounted to £50,463, against £50,271, and, after providing £27,253 (£28,000) for taxation, there remains a net profit of £23,210.

North British Locomotive on View in Glasgow



One of the 100 broad-gauge locomotives built for service in India by the North British Locomotive Co. Ltd. The engine, typical of many delivered by this company, was exhibited in George Square, Glasgow, by courtesy of the Indian Government during a recent Colonial week, there being no Colonial locomotive due for shipment at the time. The locomotive is over 78 ft. long and weighs 174 tons in working order

Notes and News

Institution of Locomotive Engineers.—The date of the Presidential Address to the Institution of Locomotive Engineers, to be given by Mr. T. H. Shields at the Hall of the Institution, Storey's Gate, Westminster, S.W.1, has been changed from November 15 to November 16.

British Electric Traction Co. Ltd.—Interim dividends on account of the financial year ending March 31, 1951, have been declared by the British Electric Traction Co. Ltd. Dividends, less income tax, will be paid at the rate of 3 per cent. on the 6 per cent. cumulative participating preference stock; at 4 per cent. on the 8 per cent. non-cumulative preferred ordinary stock; and at 7½ per cent. on the deferred ordinary and "A" deferred ordinary stock.

Education Scheme for L.M.R. Railwaymen.—A winter education scheme organised by the London Midland Region of British Railways has resulted in 8,000 railwaymen taking night classes. Of this total over 3,000 are attending classes on passenger and goods station working, while others are studying permanent way maintenance, block regulations, and signalling. Locomotive men are also learning more about their charges at mutual improvement classes and comprehensive single-lecture programmes covering almost every rail subject are available for other grades of staff. Correspondence courses have been arranged for those in outlying districts.

L.M.R. Cricket Cup Final.—The final of the 1950 cricket competition of the London Midland Region of British Railways was played at Derby recently between the Derby Carriage & Wagon Works and the London L.M.S. Athletic Club. After a keen game the London side won by only one run. Winners were presented with the Sir Frederick Harrison Challenge Cup



Mrs. C. P. Hopkins, wife of the Chief Regional Officer, Southern Region, presenting the prizes in the Railway International Ambulance Competition, which was won at Brighton by Motherwell and Wolverton who tied with 479½ points

by the President, Mr. J. W. Watkins, Operating Superintendent, Euston, while the Derby side also received a cup. Plaques were presented to the individual members of both teams. Altogether 40 teams competed.

Chloride Batteries Motor Show Luncheon.—On October 18, Chloride Batteries Limited, makers of Exide Batteries, revived the luncheon which was held regularly during pre-war years on the opening day of the Motor Show. Mr. H. V. Schofield, Director (Sales), Chloride Batteries, proposed the toast of "The Press" which

was responded to by Mr. Roland E. Dangerfield. Mr. A. W. Brown, Chairman of Chloride Batteries, welcomed the guests and Mr. R. T. Lewis responded.

Iron and Steel Transfer Date.—The Minister of Supply announces that February 15, 1951, will be the general date of transfer to the Iron & Steel Corporation of the securities of the specified companies under the Iron & Steel Act, 1949. The Act provides that the securities shall vest in the corporation on January 1, 1951, or such date not more than twelve months later as the Minister may substitute. The Minister has, after consultation with the corporation, made an Order substituting February 15, 1951, for the date in the Act. Copies may be obtained from the Ministry of Supply, Shell Mex House, Strand, London, W.C.2.

I.C.I. Leathercloth Division City Showroom.—On Wednesday, October 11, a new Leathercloth Showroom & Depot was opened at 70/74, City Road, London, E.C.1, by Imperial Chemical Industries Limited. The showroom replaces the old warehouse in Wilson Street which was destroyed by enemy action. The showroom and warehouse combined have been provided for the convenience of customers in and about London, who will be able to see examples of the products of the Leathercloth Division and obtain supplies of smaller quantities than they may wish to place with the factory direct. The showrooms are decorated largely by products of the Leathercloth Division, and a staff is available to explain the particular applications for which the various products are best suited.

Queensland Diesel-Electric Tenders.—The Queensland Transport Minister states that tenders are to be called shortly for nine diesel-electric locomotives. Six will be used on long-distance air-conditioned trains on the Brisbane - Cairns route, and one each will be allotted to the Brisbane-Cunnamulla, Townsville-Mount Isa, and Rockhampton - Longreach lines. The Minister said that railway development schemes also included the expenditure of £4,000,000 on bridges between Ipswich



Mr. J. W. Watkins, Operating Superintendent, London Midland Region, presenting the Sir Frederick Harrison cup to Mr. N. Ward, Captain of the London L.M.S. Athletic Club, winners of the 1950 cricket competition

and Rockhampton, the purchase of six diesel rail motor trains at £70,000 each, the import of 35 "B18" locomotives from Britain, and the major redesign of "C17" locomotives, the chief freight engines used in Queensland. The six diesel rail motor trains were expected to be in operation by next February or March; each would carry 188 passengers and four tons of luggage.

Queensland Rail Order.—The Queensland Government has ordered 20,000 tons of steel rails from Britain at a cost of £A792,000. The order has been placed with the British Steel Makers Association as part of a total order for 30,000 tons required for expansion of the Queensland railways.

New Issue by British Oxygen Co. Ltd.—The directors of the British Oxygen Co. Ltd. have issued £4,000,000 of 3½ per cent. unsecured loan stock 1953-5 and 693,820 ordinary shares of £1 each. The unsecured loan stock has been placed privately at 99½ per cent., but the new ordinary shares are to be allotted for cash to ordinary shareholders at 70s. a share in the proportion of one new share for each complete £5 of ordinary stock held. The Capital Issues Committee has given its consent to both issues.

Camberwell Tube Extension Deferred.—The London Transport Executive has announced that it has been found necessary to defer the authorised extension of the Bakerloo Line from Elephant & Castle to Camberwell Green. Tenders have been received for the tunnelling work, and it has been found that the cost would be considerably higher than originally estimated. The total cost of the extension, which is 1½ miles in length, including the additional rolling stock and depot accommodation, is now put at £6,250,000. The Government view is that so large an expenditure must wait until more favourable economic conditions prevail.

L.M.R. Operating Superintendent's Staff Dinner.—On October 26, the annual dinner of the British Railways (London Midland Region) Operating Superintendent's Headquarters Staff was held at "Chez Auguste." Mr. J. W. Watkins, D.S.O., M.C. (Operating Superintendent), presided, and the guests included Mr. John Elliot (Chief Regional Officer), Mr. S. E. Parkhouse, O.B.E. (Chief Officer (Operat-

ing) Railway Executive), and a number of L.M.R. Chief Officers. It was the first occasion since 1936 that the dinner had been held. Mr. L. Rowland proposed the toast of the London Midland Region, to which Mr. John Elliot responded. The toast of the Operating Department was proposed by Mr. W. E. Wright, M.C., and Mr. J. W. Watkins replied. Mr. S. A. Fitch, O.B.E., D.C.M., M.M., welcomed the guests, and to this toast Mr. S. E. Parkhouse and Mr. A. E. Hammett (Commercial Superintendent, L.M.R.) responded.

Dunlop Capital Increase Proposed.—Because of the increases in the prices of rubber and cotton the Dunlop Rubber Co. Ltd. is seeking authority to raise fresh capital and to increase its present borrowing powers. An extraordinary general meeting of shareholders on November 13 will be asked to empower the directors to issue any of the 21,650,930 ordinary shares of 6s. 8d. each at present unissued and to fix the total amount which they may borrow for the purposes of the parent company at £20,000,000.

Capital Issue by Gloucester Railway Carriage & Wagon Company.—The directors of the Gloucester Railway Carriage & Wagon Co. Ltd. have received Treasury consent to the capitalisation of £525,000 of reserves, and to the subsequent issue of 1,050,000 10s. shares, which the shareholders will be invited to approve after the annual general meeting on November 15. The transfer books of the company will be closed from October 16 to 30 for the preparation of dividend warrants and the renounceable letters of allotment to be issued in respect of the bonus shares.

Harwich Continental Services.—Details of Continental services via Harwich for the winter period beginning October 8 have been announced by the Eastern Region of British Railways. The Harwich-Hook of Holland route has a day and night service, in each direction, running daily (except on Sunday night), while between Liverpool Street and Parkeston Quay connecting train services are provided by the "Day Continental" and "Hook Continental" respectively. Between Harwich and Eshbjerg a service is provided, until October 28, on Mondays, Wednesdays, Fridays, and Saturdays in each direction, with rail connections provided by the

"Scandinavian" leaving Liverpool Street at 10.05 a.m. and Parkeston Quay at 1 p.m. From October 31 this service will operate on Tuesdays and Fridays only.

Glasgow Offices of British Timken Limited.—New offices at 93, Hope Street, Glasgow, C.2, have been opened by British Timken Limited. The telephone number is Glasgow Central 7331-2. The representative of the firm at Glasgow is Mr. H. F. Searle.

British European Airways Winter Schedules.—More services than during last winter on both Continental and internal routes are to be operated as from October 1 under the winter schedules of British European Airways. On the London-Glasgow service there will be six more flights a week than last winter; on the London-Belfast route eight more; and on the London-Guernsey-Jersey route seven more. The Belfast to Birmingham service, introduced during the summer, will continue through the winter.

Another Home for Retired Railwaymen.—Another home for aged and retired railwaymen and their wives and widows has been provided in "Wynberg," a mansion in nearly two acres of grounds adjacent to the Southern Railway Orphanage at Woking. The new home is similar to "Missenden House," opened as an old people's home in 1947. "Wynberg" was bought in 1940, but was requisitioned during the war; as renovated, it will provide a home for 25-27 persons, according to the number of married couples resident. The house, and its opening on November 1 by Lord Hurcomb, Chairman of the British Transport Commission, will be described in our next issue.

Reliability of London Transport Road Vehicles.—During the past ten years a marked improvement has taken place in the reliability of running of the London Transport Executive road-services fleet, and records show that, so far as the postwar "RT" vehicles are concerned, in the central area more than 50,000 miles are being run by this type per failure, or delay. That is about 60 per cent. of the red double-deck buses are running for well over a year without experiencing any mechanical trouble sufficient to cause a delay in the service. In the country bus area a similar standard of reliability has been achieved and the green "RTs," which make up just



Mr. J. W. Watkins presiding at the L.M.R. Operating Superintendent's staff dinner. *On his right is Mr. S. E. Parkhouse, and on his left Mr. John Elliot

OFFICIAL NOTICES

Crown Agents for the Colonies

LEADING DRAUGHTSMAN required for the London Office. Salary £500 a year, rising by annual increments of £20 to £620 a year, and thence by one annual increment of £5 to £625 a year. Engagement will be on unestablished terms terminable by one month's notice from either side, with the prospect after satisfactory service, of appointment to the established and pensionable staff, vacancies permitting. The normal working week is 45½ hours and extra duty allowance is paid for hours worked in excess of 42. Duties entail the preparation of drawings for steel and reinforced concrete structures, including bridges, buildings, and general civil engineering design work. Candidates should have had experience as a draughtsman in the office of a civil engineer, the civil engineering department of a railway, or a firm of structural engineers. They should have had considerable experience in preparing designs for bridges and buildings in steel and must be good draughtsmen. A knowledge of reinforced concrete design would be an advantage. Apply at once by letter, stating age, full names in block letters, and full particulars of qualifications and experience, and mentioning this paper, to the CROWN AGENTS FOR THE COLONIES, 4, Millbank, London, S.W.1, quoting M/N/26607/3A, on both letter and envelope. The Crown Agents cannot undertake to acknowledge all applications and will communicate only with applicants selected for further consideration.

His Majesty's Colonial Service

NORTH BORNEO

A VACANCY exists for an Assistant Locomotive Superintendent in North Borneo, to be the sole assistant to the existing Superintendent and to deputise for him when necessary. Appointment will be for 3 years on agreement, which may be renewable, on a salary scale (including expatriation allowance) of \$475 to \$1,000 per month (equivalent to £665-£1,400 per annum). An additional cost-of-living allowance is payable varying from \$85 per month (£119 per annum) for a single officer to a maximum of \$135 (£189 per annum) for a married officer. The point of entry into the salary scale would be determined by qualifying experience and war service. At present there is no income tax in North Borneo. An outfit allowance of £60 is payable on first appointment to officers on a basic salary under \$700 per month. Free passages on first appointment and on satisfactory completion of his agreement will be provided for the officer, his wife, and up to 3 children (sons under 16); but an officer receiving a basic salary of over \$600 per month will receive free passages only for children under the age of 10. Quarters will be provided at a rent not exceeding \$40 per month. Leave will be granted at the rate of 4 days per month of resident service. Candidates, preferably under 30 years of age, should hold the minimum qualification of a National Mechanical Engineering Certificate, should have served a mechanical engineering apprenticeship or pupillage with the British Railways, and have practical experience of drawing offices, running sheds, internal combustion and compression ignition engines. For a form of application, write stating age, qualifications and experience to the Director of Recruitment (Colonial Service), Colonial Office, Sanctuary Buildings, Great Smith Street, S.W.1. Please mention this paper in any reply and quote reference No. 27333/37.

RAILWAY Locomotive Spring Stripping and Buckling Press, self-contained, in good condition, with 400/440 volts, 3-phase, 50-cycles equipment. Enquiries urgently wanted. Price and details to: HARRIS, WINDPUSON & SONS LTD., Canal Street Works, Nottingham.

Crown Agents for the Colonies

ASSISTANT INSPECTING ENGINEER required for duties in the United Kingdom. The Inspectorate deals with a wide range of engineering products and for the appointment now under consideration candidates (aged 25 to 35 years) should have served an apprenticeship with a firm manufacturing the larger sizes of internal combustion engines and be thoroughly familiar with their construction, operation and testing. Subsequent experience should have been on the manufacturing and/or technical side. A knowledge and some experience of electrical plant, including diesel-electric traction, would be an advantage. Candidates should, preferably, hold a degree in mechanical engineering and be Corporate Members of the Institution of Mechanical Engineers or be in a position to obtain this membership within 2 years. The salary scale is £475 to £25 to £650. The £475 minimum is linked to entry age at 25 with an addition of £25 for each year above that age up to £600. Extra duty allowance of 8 per cent of annual salary is also payable at present. Travelling expenses and car mileage allowance with appropriate subsistence allowances are paid. Engagement will be on unestablished terms with a prospect after satisfactory service and as vacancies occur, of appointment to established and pensionable staff and promotion to a higher grade. Apply at once by letter, stating age, full names in block letters, and full particulars of qualifications and experience, and mentioning this paper, to the CROWN AGENTS FOR THE COLONIES, 4, Millbank, London, S.W.1, quoting M/N/25880 (3B) on both letter and envelope. The Crown Agents cannot undertake to acknowledge all applications and will communicate only with applicants selected for further consideration.

HAVE available from stock two No. 13 Valve Seat Facers, capacity from 4 in.-13 in. diameter, for flat and taper seats.—Box 889, *The Railway Gazette*, 33, Tophill Street, London, S.W.1.

"NITRE METIER" the illustrated weekly magazine published for the staff of the French Railways. Annual subscription 20s. through French Railways Limited, 179, Piccadilly, London, W.1.

SITUATION VACANT—District Traffic Superintendent. Salary £1,000 per annum. Knowledge of Spanish essential. Apply to Secretary, THE PERUVIAN CORPORATION LIMITED, 144, Leadenhall Street, London, E.C.3.

SITUATION VACANT, ENGINEERING ASSISTANT, Permanent Way Department, Central Railway, Peru. Salary from £1,000 per annum. Knowledge of Spanish essential. Apply to Secretary, THE PERUVIAN CORPORATION, LIMITED, 144, Leadenhall Street, London, E.C.3.

LOCOMOTIVE ENGINEER required by Consulting Engineers to supervise inspection and erection of locomotives to be built in Glasgow. Applicants should have served a recognised apprenticeship with a firm of locomotive builders or in a British Railway locomotive works and subsequently employed for not less than five years on locomotive construction or maintenance in a supervisory capacity. Experience in inspection or progress department would be an added recommendation. Technical education to H.N.C. standard. Age 35 to 45 years. Apply stating salary required and experience, to Box 111 c/o DAWSON, 129, Cannon Street, E.C.4.

Crown Agents for the Colonies

SENIOR DRAUGHTSMAN (CIVIL ENGINEERING) required by the Nigerian Government Railway for one tour of 18 to 24 months, with prospect of permanent and pensionable employment. Commencing salary, including expatriation pay according to age and experience in the salary scale £860 rising to £970 a year plus temporary allowance of from £66 to £72 a year. Outfit allowance up to £60. Free passages for officer and wife and assistance towards the cost of children's passages. Liberal leave on full salary. Candidates must have had at least five years experience in the drawing office of a railway civil engineering department (for consulting engineer or contractors with practice in railway work). Knowledge of design and construction details of civil engineering structure and railway track work is required, including ability to take off quantities, prepare estimates and draft general specifications. A vacancy also exists for a Draughtsman (Temporary Staff), having the same qualifications, on contract for one tour of 18 to 24 months in the first instance, with an appreciably higher salary and a gratuity. Apply at once by letter, stating age, full names in block letters, and full particulars of qualifications and experience, and mentioning this paper, to the CROWN AGENTS FOR THE COLONIES, 4, Millbank, London, S.W.1, quoting M/N/17417/3A on both letter and envelope. The Crown Agents cannot undertake to acknowledge all applications and will communicate only with applicants selected for further consideration.

His Majesty's Colonial Service

TWO vacancies exist for Assistant Engineers (Capital Works) in the Nigerian Railways on a salary scale of £893-£1,560 (total emoluments), the point of entry being determined by qualifications, experience, and approved War Service. Appointment will be for a tour of 18-24 months on a contract, which may be renewable. On satisfactory completion of the contract a gratuity of £25 for each 3 months of service (including leave), is payable. Free passages are provided for an officer and his wife; and a grant of up to £150 per annum is payable for children's passages or education. Furnished quarters where available are provided at a rent varying from £75 to £150, according to salary. Leave on full pay is granted at the rate of one week per month of resident service. Candidates, preferably under 40, should have passed or hold exemption from Sections "A" and "B" of the A.M.I.C.E. examinations; and should have some years experience of railway civil engineering, particularly bridge work. Applicants should write to the DIRECTOR OF RECRUITMENT (Colonial Service), Colonial Office, Sanctuary Buildings, Great Smith Street, London, S.W.1, giving brief details of age, qualifications, experience, and war service, mentioning this newspaper and quoting reference No. 27333/6.

BRITISH RAILWAYS (Western Region) require for London Office designers for reinforced concrete bridges and structures. Salary up to £630, according to age and experience. Knowledge of pre-stressed concrete desirable. Permanency and prospects of advancement for right man. Application with age, details of previous experience, etc., to Box 888, *The Railway Gazette*, 33, Tophill Street, London, S.W.1.

VACANCIES exist in London Office of British Railways (Western Region) for the following:—(a) Structural Draughtsman for preparation of designs and detail drawings of bridges; and (b) Steelwork Surveyors for examination and estimation of strength of existing bridges. Previous experience desirable. Good prospects of permanency for right men. Application stating age and details of training, education and experience to Chief Engineer, Paddington Station.

over half the country bus fleet, now average some 70,000 miles before a defect occurs in service.

Road Haulage Permits.—In response to inquiries the Road Haulage Executive states that out of about 12,000 original permits issued to road haulage undertakings enabling them to operate beyond the 25-mile limit it had been agreed to continue approximately 3,800 permits and that a further 2,700 would be continued subject to modification. The number of original permits to be revoked is approximately 5,300. With the exception of some cases where action is still to be decided all holders of original permits have been informed by letter of their position.

Institute of Transport Examinations.—A poster giving details of the examinations of the Institute of Transport to be held next May has been distributed to transport undertakings throughout Great Britain and Ireland, and additional copies are obtainable from the Secretary, 80, Portland Place, W.1. The demand for classes in preparation for the examinations continues to

increase and colleges are having difficulty in meeting it. But in spite of pressure on accommodation and the services of tutors the City of London College is making arrangements to hold duplicate classes for the three subjects of Part I of the Graduateship examination.

Alldays & Onions: Tercentenary.—For a firm to celebrate its tercentenary is an unusual event. This year, however, marks the occasion in the history of Alldays & Onions Limited, Birmingham, and it also constitutes the silver jubilee of the acquisition of the company by Mitchell Cotts & Co. Ltd., London. Though many records and valuable examples of craftsmanship were destroyed during the war it has been established that a member of the Onions family founded the business in 1650. The amalgamation with William Allday & Sons did not take place until later, and subsequently, the combined efforts of these firms were directed to the development of plant for forge and foundry, and today the company ranks as one of the foremost specialising in this class of equipment. In

addition, fans for every purpose are made, while furnaces utilising gas, oil, or solid fuel also constitute products of the organisation. During the last few decades many businesses have been absorbed. The celebrations have taken the form of a tercentenary bonus to men and women employees based on years of service. There are many employees having between 30 and over 60 years of service and 25 per cent. of the personnel have been with the firm 30 years.

Road Haulage Executive Staff College.—The Road Haulage Executive is establishing a staff college at Watford in a large house owned by the British Transport Commission, previously used by the Railway Executive, London Midland Region. It is planned to open the college early in 1951. It will be the policy of the Executive that staff appointed to, or promoted within, the managerial and supervisory grades at groups and depots should attend a short course at the college as part of the process of learning the duties of their new appointments and of the fundamental

principles of good management. The Executive hopes also to arrange for existing managerial and supervisory staff to attend for short refresher courses.

Head, Wrightson & Co. Ltd.—Speaking at the annual general meeting of Head, Wrightson & Co. Ltd., Mr. Richard Miles, Chairman and Managing Director, said that turnover and profits were again higher than in the previous year, and their comparatively new subsidiaries except in one case, all showed improved results. A dividend of 10 per cent. on the ordinary shares was recommended, but as the capital was increased during the year by a bonus issue of one ordinary share for every four shares, the proposed dividend was equivalent to an increase from 10 per cent. to 12½ per cent. on the old capital.

Train Arrival Bureau for Euston.—British Railways (London Midland Region) is to construct a new train arrival bureau at Euston which it is planned to have in use by next May. The principal feature will be a large screen, divided into twelve panels, on which information on the progress, and arrival platforms, of incoming trains will be flashed by projectors. Facing the screen will be seating accommodation for 96 persons and it will also be possible to see the screens through a window without entering the building. The bureau will also have an enquiry counter and a diagrammatic map of the routes from the north into Euston.

Morgan Crucible Co. Ltd.—Reviewing the year's working of the Morgan Crucible Co. Ltd. on September 27, Mr. P. Lindsay, Chairman, said that devaluation had not materially improved sales potential in terms of volume of goods and had only increased the sterling turnover in a limited number of export markets. Against this there had been a serious addition to the cost of many raw materials so that in the final count profits had been adversely affected. Another difficulty had been that in many cases overseas customers, though in urgent need of their products, had been unable to obtain the necessary import licences.

Charles Roberts & Co. Ltd.—Mr. Duncan Bailey, Chairman, presiding at the annual general meeting of Charles Roberts & Co. Ltd., said that at the present time the wagon works were fully occupied, and so far as they could see, were likely to be in that position for a considerable time. Output was continually increasing, due partly to the larger orders for more standardised types of vehicles. After allowing for income tax, profits for the year amounted to £118,324, an increase of £29,557 over the previous year. It was prepared to pay a final dividend on the ordinary stock of 2s. 6d. in the £1. less tax, which, with the interim dividend of 1s. 6d. per £1, was the same as last year.

Ransome & Marles Bearing Co. Ltd.—Sales during the year ended June 30 last of Ransome & Marles Bearing Co. Ltd. created a new high record and were well distributed over various industries at home and overseas. Trading profits, however, fell by £11,511 to £718,295, which was attributed to increasing costs in many directions which the company had absorbed with a view to assisting customers. After charging depreciation, and so on, and £285,000 for tax, the year's net profit amounted to £309,859, an increase of £9,372 on 1948-49. The interim dividend of 7½ per cent. absorbed £33,000 and the proposed final dividend of 12½ per cent. and the bonus of 5 per cent. required £77,000.

Railway Stock Market

Markets suffered a sharp reaction early this week when news from Korea and fears of extension of war in the Far East affected sentiment. British Funds came back sharply, and, although there were fresh big gains in tin and rubber prices on fears of shortages owing to rearmament demands, shares reacted after their recent big gains. Later, markets steadied, lower prices attracting buyers. Industrial shares throughout have been relatively steady. There seems little doubt that the dividend limitation request will be continued. On the other hand there appears to be growing hope in the City that there may be a change of Government early in 1951 and that no fresh taxation would be introduced in that case. Moreover, it is being suggested that if a big rearmament loan were to be floated there would be little need for any further increase in taxation, though it is realised that the Government may feel that higher taxation and increased purchase tax are essential to help to check inflation.

There has been a fair amount of business in foreign rails, which, however, were without outstanding features. United of Havana stocks were inclined to ease in the absence of any official news of fresh take-over negotiations. Nevertheless, it is possible that Cuba will propose to nationalise the railway, but this will presumably depend on the decision and recommendations of the World Bank Mission. No doubt United of Havana stocks will continue to fluctuate sharply from time to time and they must be regarded as mainly a pure speculation. Nevertheless, it may be as well for holders to retain their stocks at least until the end of the year, when it will presumably be known whether nationalisation is proposed. Current market prices seem moderate in relation to reasonable pay-out terms resulting from take-over of the railway by Cuba. United of Havana 1906 debentures have been active and are 19½ at the time of writing.

San Paulo at 15s. 9d. reflected profit-taking after their recent improvement. Leopoldina stocks were undecided, with the ordinary at 9½, the preference 24, the 4 per cent. debentures 89½, and the 6½ per cent. debentures 130. Leopoldina Terminal ordinary units were 1s. 6d. and the 5 per cent. debentures 85. Antofagasta ordi-

nary was sold and eased to 7½, but the preference stock kept steady at 42½. La Guaira & Caracas ordinary strengthened to 81 after a small decline and Bolivar "C" debentures were 61.

Nitrate Rails have been steady at 70s. with Taltal shares at 16s. 6d. Great Western of Brazil at 153s. 9d. were quite well maintained and Brazil Rail gold bonds were 41. Canadian Pacific at 34½ lost part of their recent rise and Canadian securities generally turned a little uncertain owing to profit-taking. At their current level Canadian Pacific offer a yield of over 6 per cent, which is not unattractive although there seems little scope for an increased dividend.

Shares of road transport companies were again quite well maintained, the prevailing view being that, despite the more difficult conditions and rising costs, most companies are likely to be able to maintain dividends. British Electric Traction stock was good with a rally to £46½. Southdown shares were 112s. 6d., West Riding strengthened to 59s., and Lancashire Transport were 70s.

Iron and steels moved irregularly and changes generally were not more than a few pence on balance. Although shares of companies threatened with nationalisation were again inclined to go still further below take-over levels other steel shares tended to firm up. Guest Keen at 48s. were particularly good on the higher interim dividend. Tube Investments at a little over £6½ have been inclined to improve on the possibility of a special payment of some kind next year if the shareholding in Stewarts and Lloyds is nationalised. The position is that Stewarts and Lloyds also has a shareholding in Tube Investments, and the latter company is not being nationalised; but whether the Steel Board will retain this holding in Tube Investments when it takes over Stewarts and Lloyds is unknown.

Shares of locomotive builders and engineers have been rather more active with Hurst Nelson higher at 58s. 9d. and Birmingham Wagon 30s. 4½d. Beyer Peacock were 23s., North British Locomotive 20s., Vulcan Foundry higher at 24s. 3d., and Gloucester Wagon 64s. 6d. Wagon Repairs 5s. shares were up to 16s. and T. W. Ward 67s. 6d.

Traffic Table of Overseas and Foreign Railways

	Railway	Miles open	Week ended	Traffics for week		No. of week	Aggregate traffics to date			
				Total this year	Inc. or dec. compared with 1948/49		Total	Increase or decrease		
							1949/50			
South & Central America	Antofagasta ...	811	22.10.50	£ 84,840	+	£ 1,030	42	£ 2,749,454	—	£ 7,820
	Costa Rica ...	281	Sept., 1950	c926,567	+	c49,730	13	c3,345,871	+	c436,566
	Dorada ...	70	Sept., 1950	40,872	+	8,687	39	353,824	+	88,794
	Inter. Ctl. Amer. ...	794	Aug., 1950	\$1,102,827	+	\$79,360	35	\$9,226,845	+	\$625,577
	La Guaira ...	22½	Sept., 1950	\$68,726	—	\$39,529	39	\$725,535	—	\$241,943
	Nitrate ...	382	15.8.50	10,816	—	8,656	32	286,336	—	6,203
	Paraguay Cent. ...	274	20.10.50	£213,440	+	£48,662	16	£3,040,403	+	£731,128
	Peru Corp. ...	1,050	Sept., 1950	\$7,842,000	+	\$2,973,300	13	\$23,447,000	+	\$8,957,910
	" (Bolivian Section)	66	Sept., 1950	Bs.15,024,000	+	Bs.3,437,840	13	Bs.30,509,000	+	Bs.619,730
	Salvador ...	100	Aug., 1950	c88,000	—	c7,000	9	c193,000	—	c20,000
Taltal ...	154	Sept., 1950	\$1,710,281	+	\$777,354	13	\$4,478,656	+	\$1,519,236	
Canada	Canadian National†	23,473	Sept., 1950	17,366,000	+	2,452,000	39	132,187,000	+	10,339,000
	Canadian Pacific†	17,037	Sept., 1950	12,237,000	+	1,453,000	39	90,971,000	+	1,733,000
Various	Barsi Light* ...	167	Sept., 1950	18,540	+	652	26	177,870	—	1,515
	Egyptian Delta ...	607	31.8.50	18,623	—	1,218	22	252,719	—	22,869
	Gold Coast ...	536	Aug., 1950	208,735	—	49,937	22	1,168,667	—	23,829
	Mid. of W. Australia ...	277	Aug., 1950	38,425	+	9,587	9	72,081	+	22,381
	Nigeria ...	1,900	Jan., 1950	502,360	+	38,978	44	5,017,814	+	266,573
	South Africa ...	13,347	30.9.50	1,764,511	+	264,593	26	42,903,038	+	4,113,528
	Victoria ...	4,744	July, 1950	1,709,297	+	711,561	4	—	—	—

* Receipts are calculated at 1s. 6d. to the rupee

† Calculated at \$3 to £1